St Francis Xavier Catholic Primary School

Times Table Policy

Written by:	SLT
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Date to be reviewed:	As and when required

Introduction

At St Francis Xavier, we believe that a secure and complex understanding of Times Tables is fundamental in the process of creating confident and number-smart children. We recognise that Times Tables are at the heart of mental arithmetic, which in itself helps form the basis of a child's understanding, ability and confidence when working with number. Once the children have learnt the times tables and related divisions by heart, they are able to work far more confidently – and efficiently – through a wide range of more advanced calculations. Here at St Francis Xavier, through a variety of interactive, visual, engaging and rote learning techniques, we strive to ensure that all children are given the opportunities to learn their times tables successfully, so that they can achieve the full times tables knowledge required by the end of Year 4. In upper Key Stage 2, the secure understanding that the children have gained of times tables, earlier on in their journey, will prove vital when applying it to multiplication facts and related division facts in order for them to simplify complex questions. We strive to ensure that our children leave St Francis Xavier number smart and thus confident and secure in their understanding of times tables.

Aims

1. To raise the profile of the teaching of times tables and to raise overall knowledge of the times tables and related division facts across the school.

2. To explain the expected practices, to ensure children learn their times tables.

3. To ensure continuity and consistency in practices and progression in times tables.

4. To ensure there is successful teaching and learning of times tables and related divisions within our school.

5. To develop our knowledge of language associated with times tables: **'times', 'lots of', 'multiplied by', and 'group of', 'multiplier', 'multiplicand', 'product'.**

Progression of times tables throughout the school

Below is the expected progression throughout the school according to the national curriculum expectations to times tables. However, if a child is ready and secure in their current understanding, they are encouraged further their understanding by progressing through the steps.

Our whole school approach takes on board the 'Chanting' method for rapid recall, step counting and other techniques that are shown in the appendix.

- Chant twice a day to support rote learning.
- Chant in small sound bites, e.g. instead of chanting four times 8 is 32, say four eights are 32.

Requirements for satisfying the year group expectations are as follows:

• To be able to count in steps, the children are required to count on in quick succession - If the child has to count on in 1's to reach the next 5, the child is unable to count on in 5's.

• To be able to recall, the child must be able to recall the times tables and related division facts instantly

• If the child needs to count on/count up in 7's to reach 4 x 7, they do not know their 7 times table. They are able to count on in 7's.

• Zero times tables should be explicitly taught in year 2 and 4

When introducing a new times table:

It is important to highlight what the children already know as known facts.

Write up the associated division facts (times table families) alongside the times table facts so that the children can see the clear relationship between multiplication and division.

Learn a fact at a time, e.g. do one a day.

Introduce times tables with counting stick activity or similar
https://www.youtube.com/watch?v=yXdHGBfoqfw

Highlighted information shows 'new learning and skills'

Reception	Introduce the concept of x1 (one group of 5 etc) • Solve problems with doubling and halving.
Year 1	Recall and use all doubles to 10 and corresponding halves. • Count in multiples of 2, 5 and 10. • x1 table (one group of…)
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables • Recognising odd and even numbers. • Count in steps of 2,3 and 5 from 0 and in 10s from any number forwards or backwards. • Begin to introduce concept of square numbers through arrays • X1 table • Begin to introduce X0 table

Year 3	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables. • Count in multiples 3, 4 and 8 multiplication tables. • Count from 0 in multiples of 4, 8, 50 and 100 • X1 and X0 tables • Square number times tables
Year 4	Recall and use multiplication and division facts for all multiplication tables up to 12x12. • Count in multiples of 6, 7, 9, 25 and 100 • Recall multiplication and division facts for multiplication tables up to 12 x 12 (x6, x7, x9, x11 and x12 are new tables for this year group) • Revise X0, X 1, X 2, X 3, X4, X 5, X 8, X10 • • Continue with square number times tables
Year 5	Recall and use multiplication and division facts for multiplication tables up to 12x12. • Revise all times tables (including x0 and x1) to 12x12 • Revise square number times tables • Establish whether a number to 100 is prime. Recall prime numbers to 19
Year 6	Recall and use multiplication and division facts for multiplication tables up to 12x12. • Recall and use square numbers • Recall and understand prime numbers

How will this be presented to the children?

From Year 1 onwards, all children will have this chart available to them in their classroom and in their Maths books. This is so they understand the progression of skills and how their prior and future learning, links to the times tables they are learning now:

Foundation Stage and Key Stage 1	Key Stage 2
Reception To be able to count in steps of 10 To be able to count in steps of 5 To be able to count in steps of 2	Year 3 To be able to recall the 3 times table To be able to recall the 4 times table To be able to recall the 8 times table

Year 1 To be able to recall the 10 times table To be able to recall the 5 times table To be able to count in steps of 2 Year 2 To be able to recall the 10 times table To be able to recall the 5 times table To be able to recall the 2 times table To be able to count in steps of 3	Year 4 To be able to recall the 6 times table To be able to recall the 7 times table To be able to recall the 9 times table To be able to recall the 11 times table To be able to recall the 12 times table Year 5 & Year 6 To be able to recall all of times tables facts and related divisions through regular consolidation of all.

Introducing New Times Tables or consolidation

The following steps should be taken into consideration and followed when teaching times tables to our children, across all year groups.

Step one: Ensure the progression of times tables is being followed
Step two: Make conceptual links to the real world
Step three: Use of the concrete, pictoral, abstract approach – linked to Inspire Maths
Step Four: Introduce new times tables by building it around facts already known
Step five: Explore patterns in times tables. Links to reasoning and investigation style questions
Step six: Ensure a consistency of language
Step seven: Time-tabled opportunities to practice times tables facts

Activity ideas and further discussion of this can be found in the appendix.

Assessment

To ensure that children are secure in the recall of the times table and related division facts the children need to be regularly assessed.

In Reception and Year 1 this assessment can be broadly teacher assessment through carpet recall sessions – ensuring that the children can recall facts in a random order.

From Year 2 onwards the children should be assessed weekly on their ability to recall times tables and related division facts. These assessments should take place during morning booster slots or the 10 minute mental and oral starter time and focus on instant, fast recall of facts. These assessments may be given verbally by the teacher/TA or can be a printed out set of questions.

Year 2 = 10 questions (5 times tables and 5 divisions)
Year 3 & 4 = 20 questions (10 times tables and 10 divisions)
Year 5 & 6 = 20 – 80 questions (even amount of multiplications and divisions to recall)

Teachers are to keep a log of the children's weekly assessments to ensure the progress of the children is recorded and also to ensure awards are only given out when just. These assessments will be completed in the back of the maths books.

St Francis Xavier will also be using Times Tables Rockstars (TT Rockstars) to assess children on their times tables knowledge in Years 3 to 6. It is a quick, easy and accurate way of collating children's times tables knowledge, which supports teacher assessment in this area. Children will complete a times table test online, using the programme, during the early morning slot twice a half term. Each week, during the celebration assembly, a 'Rocker of the Week' will be awarded to the child/ren who have made the most effort and/or improvement, on Times Table Rockstars. Using TT Rockstars, a gap analysis of children's results should be created and analysed by the teacher to inform planning so that gaps in knowledge can be addressed and target children identified.

Differentiation

It is expected that children will be at varying stages in their times table journey. In KS1, it is imperative that less able children have extra support in developing an understanding of the concept of **'lots of' and ' groups of'** before moving on to rote learning of any times tables. If children are confident in the times tables allocated for their year group, they must be moved on to the times tables from the years above. If they have not yet achieved the target tables for their year groups, they must work of the tables for the year group below.

Once children are able to recall all their times tables facts, they need to be extended through related number facts and real-life problem solving/problems in context.

Home Learning

Children need to be sent home times table homework on a regular basis. This can be in the form of times table 'challenges', identifying times table patterns, practising with parents or listening to times tables songs.

Times Table Rock Stars is a home learning tool to which all pupils from Year 1 to 6 have access. It is a carefully sequenced programme of daily times tables practice. Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised every third week or so. Teachers can

access and will set learning tasks for pupils and children are expected to be actively encouraged to access this platform from home.

Application of times tables in calculation

A child's growing understanding of times tables is only relevant if they are aware of their application in calculations and real life. In order to do this, children should be using recall of times tables and related divisions when needed in calculations.

This awareness can be created in several ways:
- Highlighting when times tables are being used during modelling
- Discussion of how they are being applied during problem solving
- Inclusion of real-life examples of times table application
- Practicing times tables on a daily basis (when children are lining up, washing hands etc)
- Live marking – identifying where errors have been made, due to incorrect calculating.

Times tables awards

In order to achieve a times tables award it is important that the child is secure in recalling the relevant times tables and related division facts.

As noted in the assessment section of the policy: Teachers are to keep a log of the children's weekly assessments to ensure the progress of the children is recorded and also to ensure awards are only given out when just.

Appendix

The use of CPA (Concrete, pictorial, abstract) approach when teaching times tables

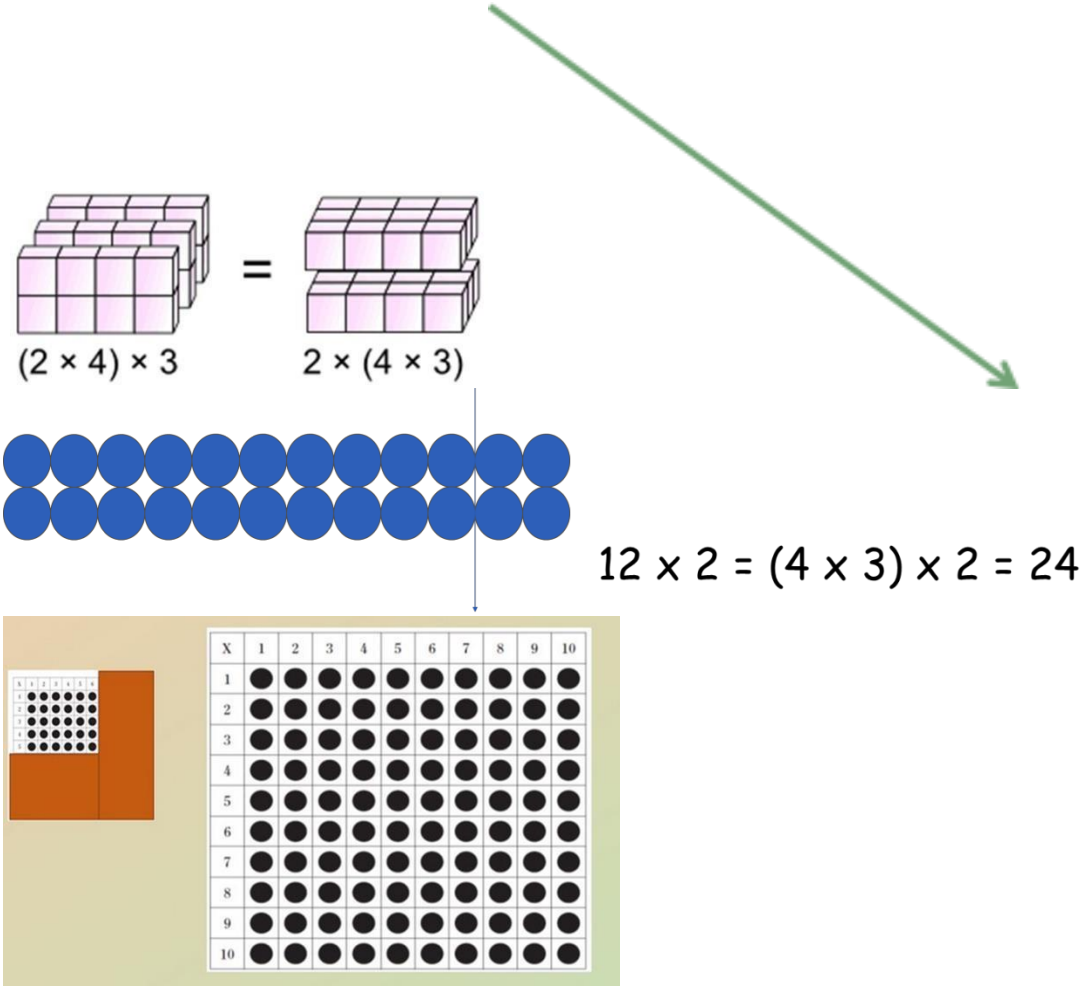
Be clear which representation you will use and why

Arrays for representing multiplication

Arrays are the most versatile model for modelling the properties of multiplication (repeated addition, commutative, distributive, associative, inverse of division).

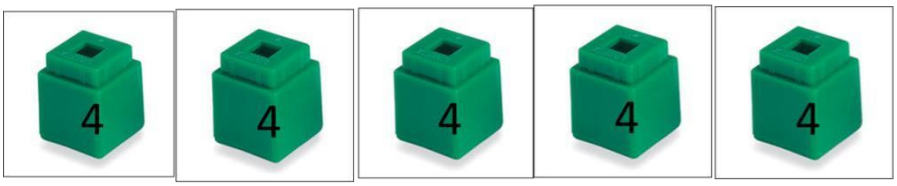
Make use of array sliders!

2 x 24 or 24 X 2 (10 x 2) + (2 x 2)



Bar model for representing multiplication problems

'Molly has 4 books
Harry has five times as many books as Molly
How many books has Harry?'



5 x 4 = 20 (books)

4

4	4	4	4	4

<u>Introduce a new times table by building it around facts that children already know.</u>

Do this together.

e.g. We have learned the 2,3,4,5 and 10 times tables. We have already me some of the facts from the 8 times table. What are they?

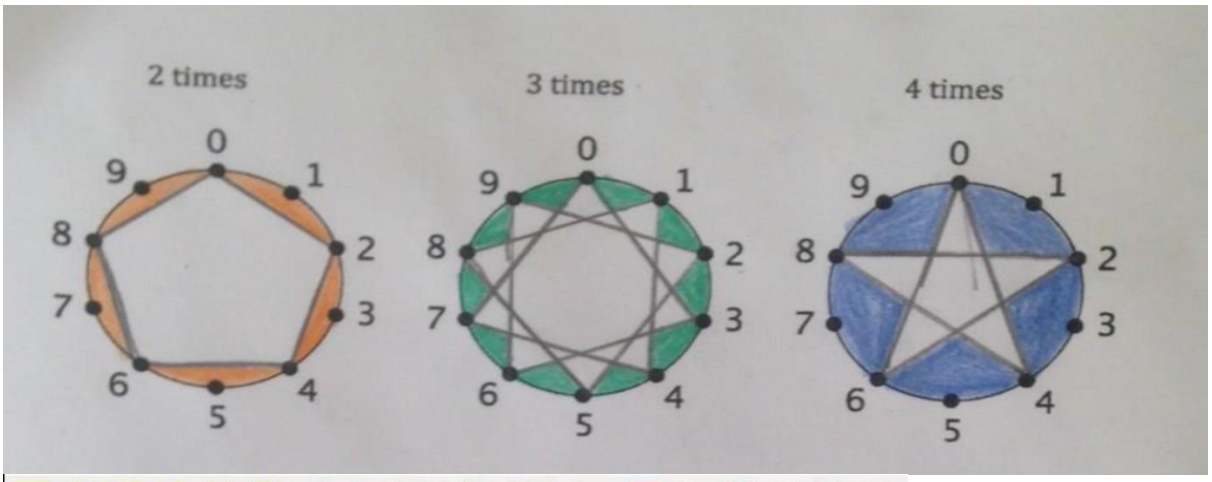
0 x 8 = 0
1 x 8 = 8
2 x 8 = 16
3 x 8 = 24
4 x 8 = 32
5 x 8 = 40
6 x 8 =
7 x 8 =
8 x 8 =
9 x 8 =
10 x 8 = 80
11 x 8 =
12 x 8 =

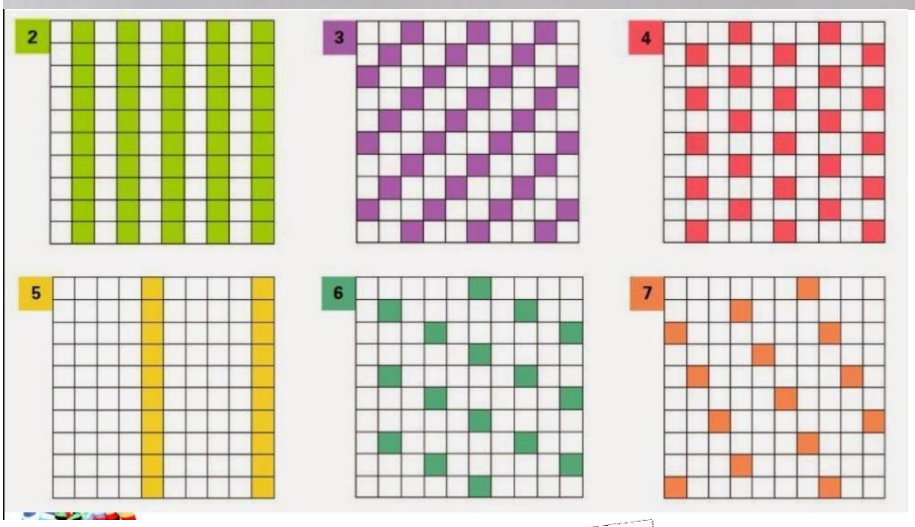
Which facts are left to learn?

Which facts might help us to work out the facts we don't know?

<u>Take time to explore the patterns of each times table as you introduce it to the class. Provide opportunities which deepen knowledge and understanding and require children to reason, conjecture, predict and explain.</u>

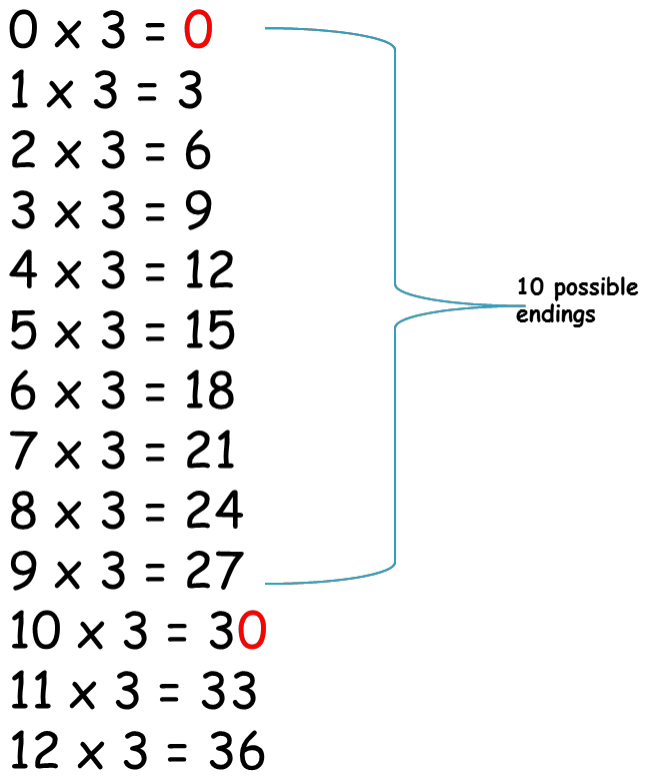
Ensure children engage with 'rich' tasks/investigations linked to times tables which encourage deeper learning, greater levels of reasoning, links to be made and patterns to be discovered.

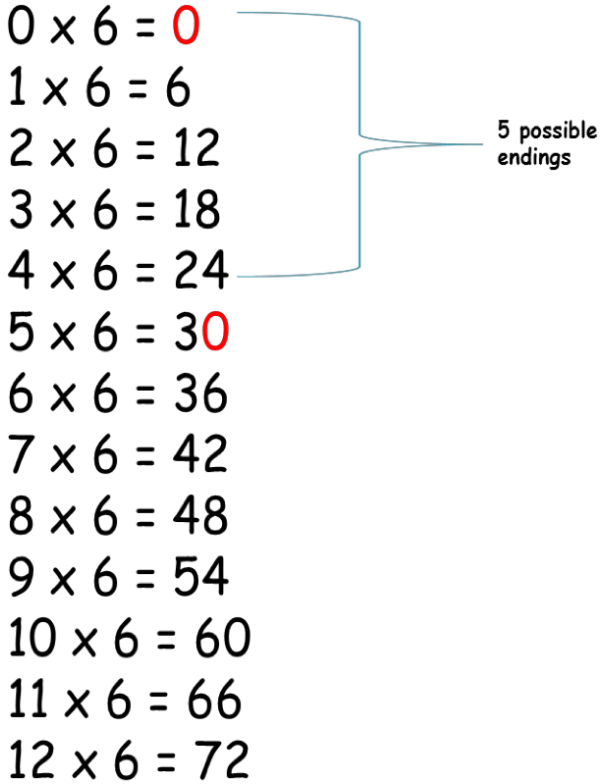




nrich
Specialists in rich mathematics

e.g. - exploring last digit in multiples





Investigating how many different possible ending there are for different times tables. Spotting patterns and relationships.

Different ways of practice

$4 \times 5 = 10 \square 10$

$6 \square 5 = 15 + 15$

$6 \square 5 = 20 \square 10$

$8 \square 5 = 20 \square 20$

$8 \square 5 = 60 \square 20$

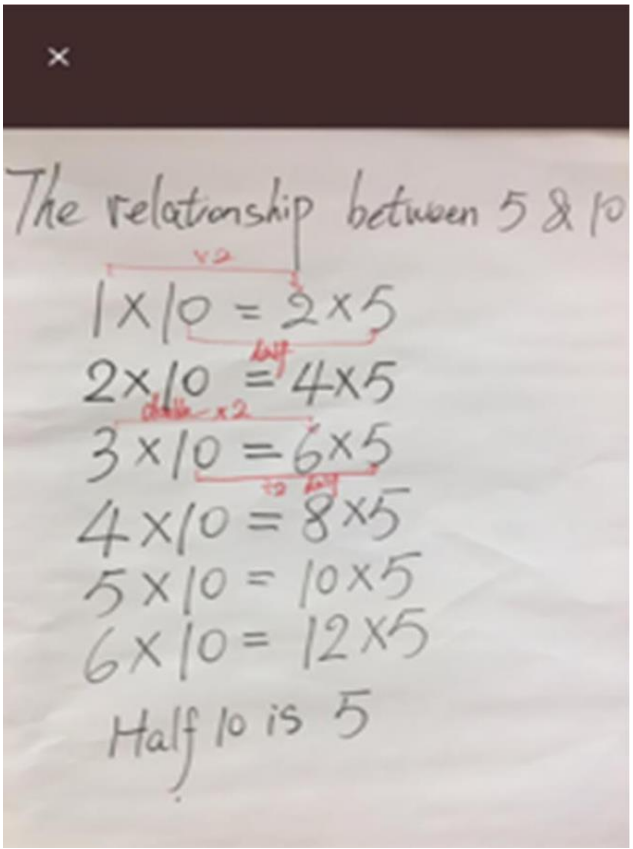
$3 \times \square + 2 = 20$

$3 \times \square + 2 = 23$

$3 \times \square + 2 = 26$

$3 \times \square + 2 = 29$

$3 \times \square + 2 = 35$



2 × 3 =	6 × 7 =	9 × 8 =
2 × 30 =	6 × 70 =	9 × 80 =
2 × 300 =	6 × 700 =	9 × 800 =
20 × 3 =	60 × 7 =	90 × 8 =
200 × 3 =	600 × 7 =	900 × 8 =

Other examples of ways to deepen knowledge and understanding

Always, sometimes, never

e.g.

- Multiples of 3 are all odd
- If the digits of a number add up to 9 the number is a multiple of 9
- Multiples of 7 are odd

Multiplicative Reasoning: Lesson 1A

Models and stories

Here is an expression involving 12 and 3:

12×3

Think of
a. some ways of saying "12 × 3"
b. some ways of calculating 12 × 3
c. some diagrams that fit the expression
d. some stories that fit the expression.

"What's the same, what's different …
between the three times table and the six times table?"

True or False
Children are given a series of equations are asked whether they are true or false:

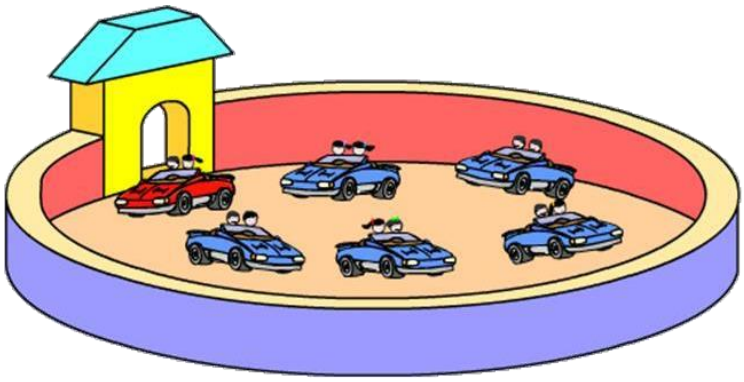
4 × 6 = 23 **4 × 6 = 6 × 4** **12 ÷ 2 = 24 ÷ 4** **12 × 2 = 24 × 4**

Consistency of how times tables are represented across the school. Language used is consistent.

Teachers should ensure they are clear about use of language 'multiplier' and 'multiplicand'. They should be confident to identify each within a multiplication problem and should encourage children to be able to identify each one within problems too.

It is fine to use the multiplier first and then the multiplicand (as long as teacher is clear and we are all doing the same).

e.g. 6 lots of 2 (things)



Addition number sentence: 2+2+2+2+2+2=12

Mulplication number sentence: 6 x 2 = 12 (people)

How many cars? 6 (multiplier)

How many people in each car? 2 (multiplicand)

How many people altogether? 12 (product)

Beach ball

Throw round classroom. Person receiving must say next multiple in times tables.

Or…

Pass around room. Count silently in head. Teacher says 'back to me'. Ball returned to teacher. When teacher receives, children call out loud the next multiple.

Or…

Teacher calls out question e.g. 3 x 7 Throws to person. Before person catches ball, ret of class must call out the answer.

The Pendulum

Split class into two teams. Must call out next multiple in times tables.

Forwards and backwards.

Start at different points

Quiet and loud (6X can be heard in X3)

Can apply to other areas of curriculum e.g. counting in decimals, fractions, percentages.

The Counting Stick – YouTube link in policy.