The teaching of Times Tables at BSM

Once children have become familiar with the abstract concept of number and how it relates to amounts in real life, we start teaching the more formal method of learning our times tables.

Learning times tables as facts, in addition to understanding what they mean and how to work them out, is essential for children's ability to manage more complicated mathematical processes in upper KS2.

Fluency is essential because:

- Automaticity with number facts frees up the working memory to think about other things such as how to solve a more complex problem. *(Willingham 2009)*
- We need to know the facts so that we can focus on concepts.
- Having knowledge of number facts supports pupils to think mathematically as they can use them to reason, see structures and patterns, and make connections *(Baroody)*

We have chosen to use a 'chanting' method for practicing our times tables where children will complete 40 questions, in 2 minutes, each day and then chant back the answers, always starting with the biggest number first. This is due to the commutative law that states that 2 amounts can be added or multiplied in any order to obtain the same answer. Always putting the greatest number first, reduces the number of facts pupils need to recall.

For example:

2 x 6 = 12 would be learnt as *"six twos are twelve"*

and 12 ÷ 6 = 2 would be the same fact *"six twos are twelve"*

Why we use this method

Research, involving scanning the brain whilst calculations are done, has shown that recalling your times tables, unlike addition and subtraction, uses the auditory and linguistic part of your brain. Chanting the times tables makes them more like a song or a poem that is ready to just 'fall out of your mouth' when you start saying them.

"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. " (Piazza and Dehaene)

When each times table will be learnt

Year 2	Year 3	Year 4	Year 5 & 6
Aut term: continue to chant 2s, 5s and 10s Spr term on: 2 times tables 5 times tables 10 times tables	3 times tables 4 times tables 8 times tables	6 times tables 7 times tables 9 times tables 11 times tables 12 times tables Overlearning, fluency and speed of all times tables	Overlearning, fluency and speed of all times tables (mixed-practice-to-12-x-12 or others from other providers)

Key information about the booklets we use to learn times tables:

- The booklets have been adapted to learn the times tables alongside the time they are learnt in our maths curriculum, and in accordance with the government's 'Ready to progress' criteria. This is the order in which the children will learn them:
    - 2, 5, 3, 4, 8, 6, 7, 9.
- We spend lots of time securing facts to 9 x 9, as these are the building blocks they need in Y5 and Y6 to do any written algorithm (short multiplication and division, and long multiplication). These booklets all build on the previous one, with a final section of mixed practice.
- There is a stand-alone book for the 10 times table (to be done in Y2).
- There are stand-alone books for the 11- and 12-times table, which need to be done for the Y4 times table check. These do not include division facts.
- There is a mixed practice booklet for all times tables up to 12 x 12 which can be used before the check. This includes far more rehearsal of the 6, 7, 8 and 9 times table facts as children tend to find these harder to remember. In line with the check, this does not include division facts.
- With the above exceptions, we include division facts in the booklets (about 1 in 5 questions is a division question) as it is so helpful for children in terms of understanding the inverse relationship between multiplication and division. However, there are not division facts in the MTC Y4 check.
- The booklets for times tables 2 – 5 and 10 include only division by that times table (e.g. 16 ÷ 2 but not 16 ÷ 8 in 2 times table) as this supports understanding of division by grouping. By the time children get to the 6, 7, 8 and 9 times table they should have a good understanding of both grouping and sharing so e.g. both 54 ÷ 6 and 54 ÷ 9 are included in the 6 times table booklet.