



How to help your child... memorise multiplication facts

Research in to memorisation of anything is best achieved through 4 steps, which, when you think about them, are fairly common sense:

1. Chunking
2. Systematic Chunking
3. Spaced Repetition
4. Active Recall

Chunking information is about breaking it up into manageable bite size pieces. For example, we usually remember our mobile telephone numbers in chunks which we recite back when asked. For the 4 x-table, a chunk might be just the first 4 facts:

- $1 \times 4 = 4$
- $2 \times 4 = 8$
- $3 \times 4 = 12$
- $4 \times 4 = 16$

Systematic Chunking is about systematically learning each chunk in turn. i.e.

1. Memorize the first chunk to approximately 80% confidence, then
2. Memorize the second chunk to 80% confidence, then
3. Review everything so far to 80% confidence, then
4. Keep repeating, adding on chunks

Spaced Repetition refers to the gaps between practising your memorisation. Research dating back to as long ago as 1885, established that, ideally, practice should be:

- 5 to 10 minutes a day
- Every day!
- Use it or Lose it (up to 75% can be lost in 48 hours if not committed to long term memory)

Active Recall - the process of trying to drag back remembered chunks from memory is what makes them move from your short term memory to your long term memory. You can often tell when someone is engaged in 'active recall' because their eyes often tend to go up and to the corner as if trying to actually see back into their head! It's also hard work to concentrate that hard - hence spaced repetition sessions should be short.

These are the four basic steps to aid memorisation. You can apply them to times tables quite straightforwardly. First learn a given times table by chunking into, say

$1 \times 4, 2 \times 4, 3 \times 4, 4 \times 4$

When that has been learnt to 80% confidence; move on to the second chunk of

$5 \times 4, 6 \times 4, 7 \times 4, 8 \times 4$

And so on.

When the 4's have been committed to memory, go on to the next x-table. But don't forget to follow the principal of systematic chunking and going back to review previous tables periodically, in order to keep them in long term memory. Even the best learned facts will degrade with time if not revisited regularly.



Advanced Memorisation Tips !!

You can build on the 4 step memorisation technique above with various tips and techniques:

Prioritisation - this means spending more time on the things you don't know well and less time on the things you do know well. For example, if you have 12 cards with a x-table fact on each, and there are only 2 that you don't know very well, then it is better to test yourself on these 2 more often than the other 10. It avoids a false sense of confidence and builds in efficiency.

Visualisation - memory is predominantly visual. Try closing your eyes when memorising.

Pre-viewing - go through each of the 12 facts for an individual x-table to see the big picture of what you are going to be learning before focussing on the big picture.

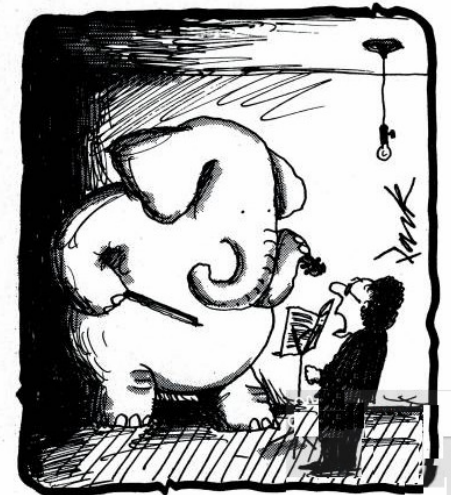
Colour chunking - write each chunk out in a different colour.

Speak it out loud (50% more likely to remember)

Font - if typing up facts, use Times New Roman—apparently it is the fastest to read!

Rewards - reward yourself regularly!

Time of day - choose a time when you have energy and focus



"No, no, no! Attack the vivace passages! Slow down the andante! Where is this great memory I'm always hearing about?"

Movement - ever tried pacing up and down while trying to memorise something? Keep alert and engaged.

Apps - there are plenty of apps available to help—some are even based on the principles mentioned.

Obstacles and Traps! -

•What remains in your memory from an experience depends mostly on what you thought about during the experience. So,

- Don't listen to music
- Don't multi-task. Concentrate solely on memorising

