Times Tables Tricks
by
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Recalling times tables quickly is an essential skill for success in school mathematics. These small "tricks" help reduce the times tables to just 24 to learn by rote and are a feature of the numeracy programs at Learning Links.

There are 169 times tables for children to memorise so that they can recall this information quickly for mathematics questions right through to the HSC. This can feel like an enormously difficult task for children and adolescents with learning difficulties and disabilities. The system we use at Learning Links helps to reduce these 169 times tables down to just 24 and takes away much of the anxiety around times tables.

We begin by introducing the concept of commutatively, *"When multiplying the order of the numbers doesn't matter."* In other words, 3 x 4 = 12 and 4 x 3 = 12, the answer is the same regardless of the order of the numbers. We use counters to demonstrate this. This rule alone cuts the times tables to learn in half!

Next we gather a blank tables square (see image) and some coloured pens or pencils. Beginning with the zero times tables we teach, "When we multiply by 0 the answer is always 0". Using the knowledge that 0 x 1 = 0 (vertical rows) and 1 x 0 = 0 (horizontal columns) the answer of 0 is written in a colour all the way across and down the first row and column.

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

We then move to the **one times tables** and teach, *"When we multiply by one the answer is always the number we're multiplying."* The worded aspect of this system is important as it provides a cue other than numbers to draw on to aid memory. Before we write these answers in the rows and columns we make a quick reference to the fact that we don't need to learn 0 x 1 or 1 x 0 as these have been covered in the previous table, so there are less to

learn this time. We can now write the answers to the one times tables in the second vertical row (1 x 2 = 2) and horizontal column (2 x 1 = 2).

To help remember the **two and five times tables** our system uses the counting patterns. This means that if a table is forgotten there is the extra cue of using fingers and counting patterns (e.g., 2 x 3 place 3 fingers up and count by 2's three times: 2 – 4 – 6). We teach, *"When we multiply by two/five it is just like counting by 2's/5's (use your fingers if you're stuck!)"* Two and five times tables can now be written on the grid and there are again less of these to learn as the 0 and 1 times tables have already been written down.

The **ten times tables** can also be introduced using the cue of counting patterns, but there is a much simpler rule to remember. We teach, *"When we multiply by ten just add a zero at the end."*

Some will already be written and just a few remaining can now be written in a new colour.

The **eleven times tables** (up to 11 x 9) also have a nifty trick worth remembering. We introduce this by using the tables already written on the grid (11 x 1 = 11, 11 x 2 = 22, 11 x 5 = 55) to visually recognize the pattern. We reinforce, *"When we multiply by eleven (up to 11 x 9) just write the number twice."* The remaining eleven times tables can be written on the grid in a new colour.

This leaves the **nine times tables** as the remaining table with a specific trick to help. This trick of using the fingers to help with the nine times tables up to 9 x 10 is great fun. We start by laying our hands face down on the table and practice becoming familiar with bending fingers quickly. We say, "Put down your second finger," and ensure students can place down the finger next to their pinkie on the left hand. This trick works best when there's not a lot of cognitive load on counting fingers so a bit of practise first is time well spent.

Now for the "trick"- bend the finger down to match the number you are multiplying by nine, for 9 x 4 place down fourth finger (pointer finger on left hand). This finger acts as a marker of place value, dividing the tens and ones in the answer. The fingers upright before the bent finger represent the ones and the tens are represented by the fingers upright after the bent finger. For 9 x 4, three fingers are upright before the bent finger, meaning the answer will be in the thirties. Six fingers still upright after the bent finger, so the answer is 36. It is a great "trick" for the nine times tables and with a bit of practice becomes automatic.

If the finger is difficult the nine times tables can also be represented as a visual pattern where the tens column is increasing by one and the units column decreasing by one each time. This is not our recommended technique, as they all need to be written down in order to work out the rule, but is a cue if the finger trick is not successful.

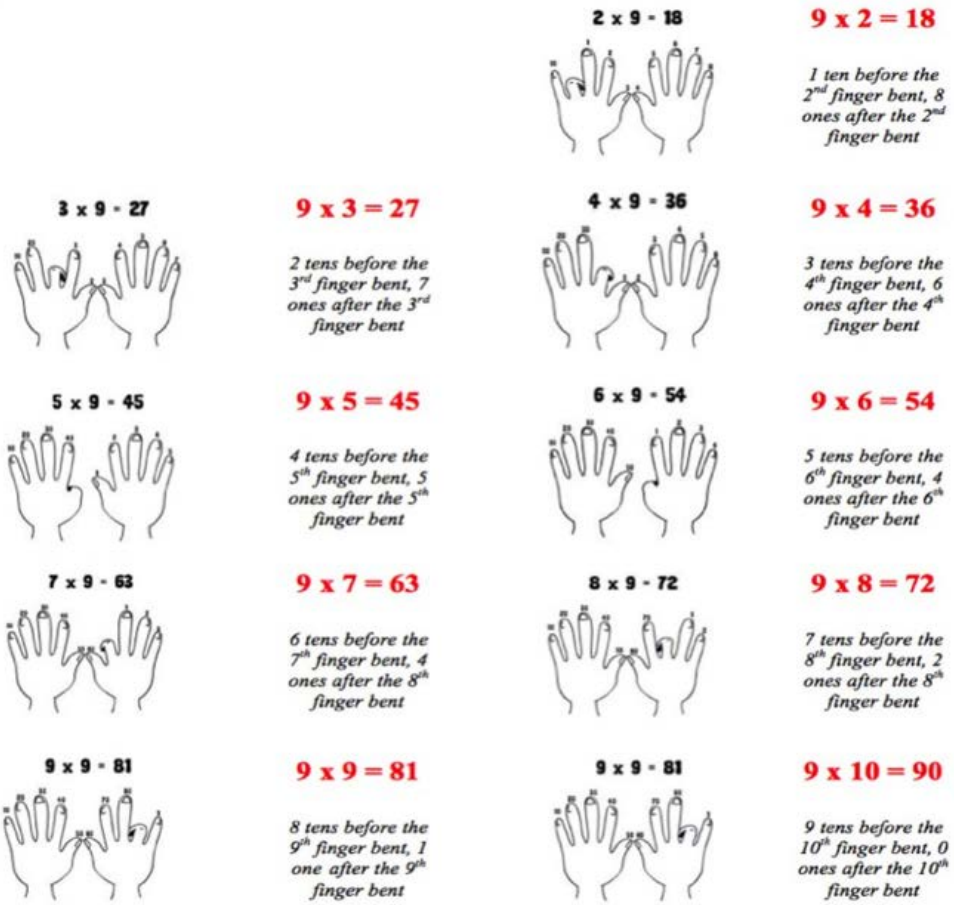
After writing in the vertical rows and horizontal columns all of the 0, 1, 2, 5, 10, 11 (up to x 9) and 9 (up to 10), the times tables grid is looking very full! However, there is one more trick that helps reduce it even further. At this time we return to our first lesson, *"When multiplying the order of the numbers don't matter*." This means that of the tables remaining we only have to spend time remembering half of them. We explain further in relation to the three times tables, *"There is not a trick for the three times tables and you may need to learn the ones remaining, 3 x 3 = 9, 3 x 4 = 12, 3 x 6 = 18, 3 x 7 = 21, 3 x 8 = 24, 3 x 12 = 36.*

Once you do you will already know the answer to 4 x 3, 6 x 3, 7, x 3, 8 x 3 and 12 x 3 and therefore don't need to learn these. We can place a line through these tables in the vertical rows."

This quick demonstration can be extended to place a line through the duplicate tables for the four (6 x 4, 7 x 4, 8 x 4, 12 x 4), six (7 x 6, 8 x 6, 12 x 6), seven (8 x 7, 12 x 7) and eight (12 x 8) times tables. This leaves the magical 24 tables left to learn.

These 24 tables are then best learnt using rote recall, flashcard card games (memory, snap, fish, concentration), iPad apps and written practice sheets. Once the student is left with 25 tables left to learn they no longer seem such an awful task and in many cases there is enthusiasm for learning these.

At Learning Links we find this system of introducing and revising times tables to be successful and enjoyable for the students. This system is used throughout our face-to-face sessions and is a feature of our Counting for Life Program available for purchase and delivery in home and school settings.



http://www.multiplication.com/teach/teaching-tips-and-tricks#_HAND-Y_NINES_

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6			15				27	30	33	
4	0	4	8			20				36	40	44	
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12			30				54	60	66	
7	0	7	14			35				63	70	77	
8	0	8	16			40				72	80	88	
9	0	9	18	27	36	45	54	63	72	81	90	99	
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110		
12	0	12	24			60					120		

Dr Samantha Hornery is a primary and special education teacher who has worked in school and community settings teaching, developing, and managing educational programs for students with learning difficulties and disabilities. Samantha completed a doctorate in 2011 evaluating a volunteer administered reading program, Reading for Life, managed by Learning Links, a not-for-profit organisation in Sydney and was awarded the NSW Institute for Educational Research Outstanding Thesis Award in 2012. In 2014 Samantha appeared in the ABC1 documentary, Kids on Speed? helping children diagnosed with ADHD manage educational gaps in their learning. Samantha currently holds the position as Manager – Educational Support at Learning Links

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