Times Table Activities: Multiplication

Times tables can be taught to many children simply as a concept that is there – with no explanation as to how or why it is there.

And most children will find this a perfectly acceptable way of working. But, for those with dyscalculia or for those with the symptoms of dyscalculia caused by not having grasped the fundamentals of number and addition, going back to the basics of how and why the tables work can be helpful.

Thus on the multiplication activities that follow the crucial element is the discovery of how each times table works. There is also an element of prediction involved – this can be really helpful in getting the child to understand that there is logic in each table, and that results can be predicted.

Activity 9: The two times table

- Put a red counter on the table and give the child a pile of red counters for the activities that follow.

- Tell the child you have one red counter on the table. Ask the child to put a second red counter down and say "two red counters." Continue this up to five.

- Now put two red counters on the table, and the child says "two red counters." Now ask the child to add another group of two. The child puts down another group of two. Ask the child how many counters there are now on the table – the child should say four. Repeat the process with three sets of two, and the answer is six.

- Now say to the child, "Put two counters on the table, and say 'one two is two.' 'One two' means you have one group of two counters on the table." The child should do it.

- Now move to adding a second group of two counters. As the child puts them down the child should say, "two twos are four". Lay out the counters so that it is clear there are two groups of two.

- Lay out three groups of two red counters. Ask the child how many groups there are. The answer is three. Ask the child what is in each group. The answer is two. Following the previous pattern the child now says, "three twos are six".

- Continue up to 5 twos, unless the child is growing tired or is making mistakes.

Activity 10: two, three and four times tables

- Show the child the 2, 3 and 4 times tables, and ask the child to consider them in terms of even and odd numbers. What is noticed? The answer is that the 2 and 4 times tables only include even numbers. And 2 and 4 are even numbers. The three times table contains alternating even and odd numbers – three is an odd number. Again what we are trying to do here is generate an interest in the fact that numbers do not appear randomly, but generate sequences.

- Ask the child if she or he would make a prediction about odd and even numbers for the 5 times table. Will the answers in the table be:

    - Random
    - Alternating odd and even
    - All odd
    - All even

- Ask the child to complete the work on the five times table, using the same technique as already established. At the end, compare the result with the prediction made earlier. If the child is wrong, go over the problem and see why.

- After asking some questions such as, "if we have a times table for any even number would you expect that the solutions would be even, odd or a mixture?" move on to, "if we had a times table for 12, would the answers be even, odd or a mixture.

- Ask the child to write down a very big number on a sheet of paper. The child might write anything – but let's say it is 903847. Ask the child to tell you something about that number. The answer is that in the times table the answers will alternate odd (for one times 903847) and even.

- The aim should be that the child could be able to say to an interested adult, "write down a huge number and I will tell you something interesting about its times table". If you can get the child to do this at home, then the child will be seriously taking an interest in numbers.

Activity 11: Six times table

- Tell the child we are going to work on the 6 times table today. Ask the child to predict the answers. Will they be:

    a) Random
    b) Alternating odd and even
    c) All odd
    d) All even

  Ask the child why.

- Show the child the 6 times table, Now ask the child if she or he can see any link between the three times table and the six times table. The answer should be of the same type as was found for the 2 and 4 times table – the 6 times table takes every other answer from the 3 times table.

- Ask the child why this "every other answer effect" occurs. If the child does not know, put three counters on the table, and then another three, and ask how many there are.

- Repeat this, taking the total to 9 and 12. Ask what the relation is between three and six. The answer should be that six is two threes, 12 is four threes. Repeat this with two and four.

- Create the six times table as has been done with other tables, and check the predictions made in the last game. If any of the predictions are wrong, look with the child to see how this error was made. Ideally the child should spot the error and be able to see where she or he has gone wrong.

Activity 12: Seven and eight times tables

- Move on to the 7 times table, working as before. Ask the child to predict the answers. Will they be:

    - Random
    - Alternating odd and even
    - All odd
    - All even

- Ask the child why he/she is making this prediction.

- Write out the 7 times table following the pattern used before.

- Now ask the child if she or he can see any link between the 7 times table and any other. The answer should be no - apart from the answers alternating even and odd, there is no link.

- Move on to the 8 times table. Ask the child to predict the answers. Will they be:

    - Random
    - Alternating odd and even
    - All odd
    - All even

- Ask the child why he/she is making this prediction.

- Now ask the child if she or he can see any link between the eight times table and any other table. The answer should be that the 8 times table takes every other answer from the 4 times table. Once this is established write out the table.

- Ask the child why this “every other answer effect” occurs. If the child does not know, put four counters on the table, and then another four, and ask how many there are. Ask what the relationship is between four and eight. The answer should be that eight is two fours.

Activity 13: Nine Times Table

- Move on to the 9 times table. Ask the child to predict the answers. Will they be:

    - Random
    - Alternating odd and even
    - All odd
    - All even.

  Ask the child why this prediction is made, and then complete the table.

- When the child has completed the table, ask the child if she or he can see any link between the numbers. The answer should be that there is a pattern in the answers – the left number rises and the right number declines. In addition, the pair of numbers always adds up to 9.

9	0 + 9 = 9
18	1 + 8 = 9
27	2 + 7 = 9
36	3 + 6 = 9
45	4 + 5 = 9
54	5 + 4 = 9
63	6 + 3 = 9
72	7 + 2 = 9
81	8 + 1 = 9
90	9 + 0 = 9

Activity 14: Ten and Eleven Times Tables

- Ask the child to work with the 10 times table and set out the answers mathematically and in a multi-sensory way. The child should be able to work through the whole process, making predictions, writing out the table, saying the table, and then drawing out interesting points – in this case that the answer always ends in zero.

- For the multi-sensory element of the 10 times table, you can use ten red counters or one blue counter. Ask the child to lay out the table both ways and to say it. The statements will be the same either way – "one ten is ten" etc - but in one case the child will be moving around up to 100 red counters, in the other case, he or she will be moving 10 blue counters.

- Now ask the child to handle the 11 times table. Ask for the usual predictions – and note that the predictions should be the same – there is no change just because the number being multiplied is over 10.

- In working in the multi-sensory approach the child should be putting down one red and one blue counter for each 11. Thus 33 is represented by three blues and three reds. The child should be able to look at this combination of red and blue and see the answer at once – if not, you should return to the earlier work on numbers to secure this awareness. The child should have no problem doing the table in a multi-sensory way because all he or she has to do is put down one more counter of each colour and see what the result is.