# Turning the Tables

We all remember sitting in school chanting out the 'tables' on a sunny morning. The most successful approach to teaching and learning multiplication tables is use of a variety of strategies: counting; using concrete materials; identifying patterns and discussion of situations which require multiplication in everyday life. In this article we provide some activities which we hope will help pupils to internalise the concepts relating to multiplication.

The Multiplication Board

Introduce multiplication tables as **repeated addition**. Using a concept board insert pegs as in the photograph, so that the children can see two groups of four and also see 4 + 4 is the same as two groups of 4, continue with further rows of pegs and allow the children to establish the relationship between groups of 4 and repeated addition.
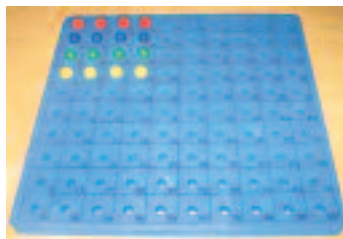
Always refer to the **commutative property** of multiplication when teaching any multiplication fact; 6 x 4 = 4 x 6.

Teach the square numbers together; 2 x 2, 3 x 3, 4 x 4, and use the multiplication board to show this concretely.

Clock face 5s

Use an analogue clock to help pupils make the connection with counting in 5s.

Twice a known fact

If children don't know the answer to 4 x 7 tell them to make 4 groups of 7, with cubes, counters etc. Guide them to rearrange the 4 groups of seven into 2 sets of 2 x 7 and draw to their attention that if they know 2 groups of 7 then 4 groups of seven is easy.

Pattern: Calendar 7s

Use calendars to help pupils count in multiples of 7. Ask pupils to find the seventh of the current month and identify the day on which it falls. What is the date one week later? Encourage pupils to explore the calendar to find other number patterns.
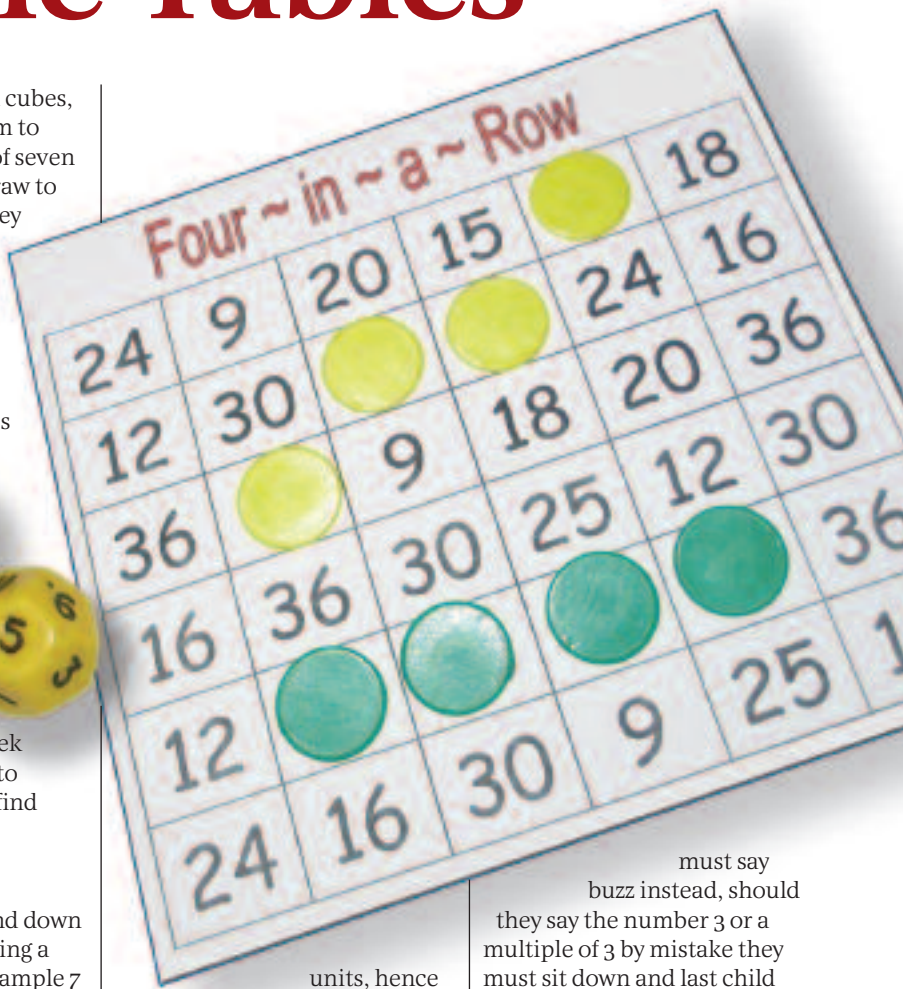
Calculator Constant

Drill the multiples up and down the multiples ladder. Using a calculator to drill, for example 7 times tables; press 7 + + = = = = = = =, and note you will get multiples of 7 on the calculator display. Check this works on your calculator first.

The 9s Finger Trick

a) *Use fingers to teach 9 times tables.*
Children place both hands on the table in front of them. Counting from the left, pick the multiple of nine you want to get the answer for (see above for 7 x 9) and curl that finger under.
The fingers to the left of that finger are tens, hence 6 tens (60) and the fingers to the right of the curled finger are units, hence three units. The answer to seven nines is therefore 63. Children love this one but try it a few times yourself before you get them to do it! They particularly like to show it at home.

b) *Another nine 'trick'*
Note that when the digits in the answers to the 9 times tables are added they will add to 9, e.g. 9 x 4 = 36; if you add the digits in the answer 3 + 6 = 9; similarly for all the others. This works for nines only.

Tried and Tested Table Games

Buzz

This old game still works and requires no materials at all!
Invite all the children to stand up. Identify the 'buzz' number, such as multiples of three. Now ask them one by one to count, first child starting at one, next child says two... However when a child is due to say 3 or a multiple of 3 they must say buzz instead, should they say the number 3 or a multiple of 3 by mistake they must sit down and last child standing is the winner.

Fuzz Buzz

As an extension to the buzz game, the children **buzz** on three and five and also multiples of three and five. When you have a **common** multiple for both three and five, eg 15, 30, 45, 60, etc, they must say, fuzz buzz instead of buzz. Last child standing is the winner. This one takes a bit of practise but they really enjoy playing it.

Connect 4 using dominoes

You will need a set of dominoes with the blanks removed, some counters and a 6 x 6 grid with numbers from 1 to 36 marked on it as shown in the diagram below (this grid can be downloaded from www.pcsp.ie). Place the dominoes face down on the table. Players take it in turns to choose one. Multiply the score on the two halves of the domino together and place a counter on the resulting

number on the square grid. For example a double 4 domino means 16 can be covered, a 2-dot and 5-dot domino means 10 can be covered. The first person to connect 4 numbers in a line, vertically, horizontally or diagonally, wins. You could also adapt this game for addition fact practice.

Extension Connect 4 game

The dominoes used in the above game are referred to as double 6 dominoes, as the highest domino in the set is the six. These will cover half of the tables. However double 9 dominoes can also be purchased from any of the educational suppliers and these will cover all your tables to 9 x 9. A new 9 x 9 grid with numbers from 1 to 81 marked randomly on it will also be required.

Four-In-A-Row/Connect 4 using dice

This game can be played using two six-sided dice instead of dominoes. For the 9 x 9 grid appropriate 9-sided dice can be purchased. 12-sided and 20-sided dice are also easily available.

Layout

Using a deck of playing cards, remove all the picture cards from the pack. The remaining 40 cards including the aces (ace = 1) are dealt face up to make a grid 8 x 5, see photograph below.

The dealer chooses two cards that are next to each other, either horizontally or vertically, and without saying which they are, calls out their product eg, "I see 24".

The other players try to find the cards that give that product (or any two cards that also have the same product). The first player to point to a correct pair

wins those two cards and keeps them.

This player then chooses another pair of cards and calls out their product. Play goes on like this until all the cards have been won. The winner is the player with the most pairs. Guaranteed a hit!
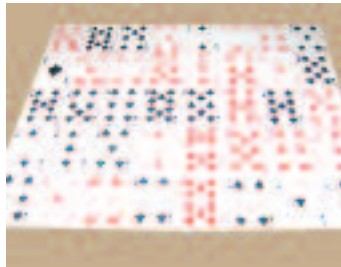

Show Most

Using the same 40 cards (aces to tens) divide them out between the players. The cards are kept face down in piles. Each player places his/her first two cards face up on the desk and multiplys them. The player with the highest value gets one point. At the end of the hand, the cards are collected and re-dealt. The first player to get to ten points is the winner.

Beat the Clock

Draw a diagram similar to the one below on the blackboard. Put 7x in the middle of the clock. Children then call out their 7 times tables going around the circle. The teacher times the children to see which children can do it in less than one minute/30 seconds as appropriate to their ability. This can, of course, be played with any times table.

Adapted from Multiplication Facts, Mulberry Publications www.mulberrypublications. com
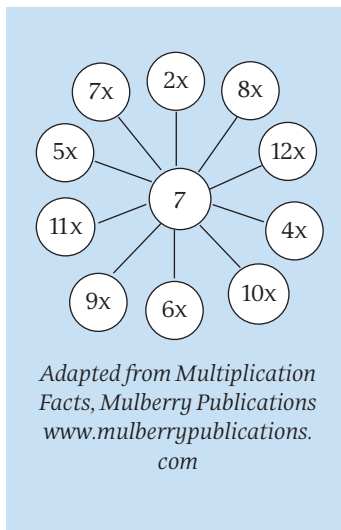
Beat the calculator

Children are asked a number fact, eg, 7 x 9; one child works on a calculator while the other child works it out in their head. The fastest child to answer wins.

Loop games for tables

See diagram below.
Each child gets a different card. One child starts and reads out their card, eg, I have 30, who has 9 x 2? The child that has the answer to that question continues, eg, I have 18 who has 11 x 4, etc. This game is excellent for developing children's concentration and listening skills as well as improving their tables. Similar games can be downloaded from www.primaryresources.co.uk

I have 30 Who has 9 x 2?	I have 18 Who has 11 x 4?	I have 44 Who has 3 x 12?
I have 36 Who has 4 x 7?	I have 28 Who has 5 x 9?	I have 45 Who has 8 x 8?

Mental Maths Board

Draw a diagram like the one below (any numbers can be used) on the blackboard and use it to ask the following suggested questions. This is a very flexible game which can be used to include all children in the class by differentiating the questions.

8	4	16
9	18	24
6	3	28

- Multiply each number on the board by ten. Is there a quick way to multiply by 10?
- Four is a square number. Are there any other square numbers on the board?
- What two numbers on the board have a product of 24? Are there any other possibilities?
- How many 7s in 28?
- Divide 16 by 3, what is the remainder?

- The product is 24, one factor is 8, find the other factor.
- Half each number on the board.
- Double each number on the board.
- How many multiples of 4 can you find?

Language of tables

Groups of, times, by, of, product, multiply, multiplication, square, power of, multiple. Make sure the children are aware of all of the words connected with their tables – they could collect these words as they occur and add to a class chart.

Commercial games

Most educational suppliers and shops which stock educational games will have a wide range of games for reinforcing number facts. Many of these use well-known board game strategies like bingo to provide a fun alternative to rote learning.

Resource books

There are many excellent resource books available on the topic of tables from all of the usual educational suppliers.

Maths Software

www.kidwaresoftware.com Right click on multiplication tables. You will need to download the Winzip file for this from *www.winzip.com*

References

www.primaryresources.co.uk for free games

Compiled by the Maths and Science team of the Primary Curriculum Support Programme.

The activities outlined above have been taken from the PCSP website.

For further ideas visit the website at www.pcsp.ie