

DR MATHS

WITH STEVE HUMBLE,
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Dear Dr Maths
I was watching the Richard and Judy Show and heard Carol Vorderman talking about the new Sudoku craze in the newspapers. She said that Sudoku has nothing to do with maths. I was very confused by this, as being a Sudoku fan I feel that the puzzles are full of logic and mathematical skills. What do you think?

LINDA
JESMOND

	6	9	7					
8						1	7	
	7	1				3	9	
	5						4	
	8				1		8	
4	6				5	8		
7	1							4
		4		6	5			

Here is an example of a Sudoku puzzle. The object of the game is for each of the nine, three by three blocks to contain all the numbers one to nine.

Also in the larger grid, every number from one to nine must appear in each of the nine vertical columns and in each of the nine horizontal rows. There can be no repetition of any number in any row or column.

I agree with you, Linda, and would say that Sudoku

puzzles require good logical skills which form the heart of mathematics. In fact, Sudoku problems can be solved by using a complicated type of maths called combinatorial optimisation.

Sudoku puzzles are an excellent way of getting young children involved and interested in doing maths. Roughly translated, Sudoku means "single number" in Japanese. These sorts of number puzzles have been very popular in Japan for a long time. This is due to the structure of the Japanese language, which makes it difficult to construct word puzzles.

Sudoku originates in work by the Swiss mathematician Leonhard Euler who was born in Basle in 1707, described as the King of Mathematics

because he was one of the most prolific writers on mathematics.

Sudoku puzzles come from Euler's Latin squares. A Latin square can be constructed with an ordinary pack of cards. You start with nine cards made up of the king of hearts, clubs and diamonds; queen of hearts, clubs and diamonds; jack of hearts, clubs and diamonds.

Place the nine cards on to a three by three grid so that no row or column has any of the same suit or type of card. A possible solution looks like this.



This is only the beginning as you can now introduce another suit and have 16 cards, for example four aces, kings, queens and jacks. Place these on to a four by four grid, remembering that in each row and column there must be different suits and types of cards.

For each size of Latin square grid, you can create a number of different answers which will work.

Here is a puzzle for you to try: Using the 16 cards above, create a different Latin square



to the one shown.

First correct answer will win copies of The Times Sudoku books which are available from Waterstone's in Newcastle.

Congratulations to Charles Blackburn, from Houghton-le-Spring, and Elaine Bell, from Usworth, who correctly worked out that Alex gets to eat too many doughnuts and won tickets to the Midsummer Madness event at The Sage Gateshead.

Do you have a maths question or problem? Write to Dr Maths, Evening Chronicle, Groat Market, Newcastle NE1 1ED or e-mail: DRMaths@hotmail.co.uk