

MULTO

Materials One blank MULTO board per student.
100 cards, each containing a number fact from 0×0 to 9×9 .

Rules of MULTO

1. Write 16 different numbers between 0 and 81 inclusive on your MULTO board. An example is shown alongside.
2. The teacher will pick a MULTO card at random.
3. Multiply the two numbers together. If the answer is on your MULTO board, circle it.
4. Repeat Step 2 and Step 3 until there is a winner. To win MULTO, you must circle 4 numbers in a row, column or diagonal, OR the 4 corner numbers.
The teacher will check that the board is a winner.
5. The game will continue until there are 6 MULTO winners.

MULTO			
31	9	17	12
50	81	6	47
0	16	22	32
8	35	70	13

What To Do

1. Your class will play a number of games of MULTO, so you can get a feel for the game.
2. Think about how to design your MULTO board so you have the best chance of winning. Some things you may wish to think about:
 - Which numbers are the best to choose? Which are the worst numbers to choose?
 - Are some cells better than others? If so, which cells? Why? Where on the grid should you put the best numbers?
3. Make the MULTO Board that you think has the best chance of winning.
4. Write a report on why you chose those numbers and why you put the numbers where you did. **You must fully explain and justify your choices.** You will have to use your knowledge of factors, multiples and chance in your explanation.
Your report may include diagrams and tables.

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Possible Solution

	0	1	2	3	4	5	6	7	8	9	Tot
0	19	1	2	2	3	2	4	2	4	3	42
1	2	0	4	0	2	2	3	0	4	0	17
2	2	2	0	0	4	1	0	2	2	0	13
3	2	0	2	0	0	2	3	0	0	0	9
4	2	0	2	0	0	2	0	0	2	1	9
5	0	0	0	0	2	0	2	0	0	0	4
6	0	0	0	2	1	0	0	0	0	0	3
7	0	0	2	0	0	0	0	0	0	0	2
8	0	1									1

The most frequent numbers are: 0 (19), 6 (4), 8 (4), 12 (4), 18 (4), 24 (4), 4 (3), 9 (3), 16 (3), 36 (3). There are many numbers with 2 factors. There are 4 ways that a corner number may be involved in a win, 3 ways a centre number may be involved in a win and 2 ways for an edge number to be involved in a win.

A good (but probably not optimal) solution is

0	4	9	6
54	18	48	45
63	16	24	56
8	36	72	12