

Magic Multiplication Square

- * Ask students to draw a 9×9 grid in their books.
- * Write the numbers 1 - 9 along the top and down the left side as shown below.
- * Multiply the numbers in the vertical column by those in the horizontal row.
- * If the product exceeds 9 add the two digits. If this sum exceeds 9 then add these two digits.
- * Write the answers in the grid.
- * The answers are shown in the second grid below.

1	2	3	4	5	6	7	8	9
2								
3								
4								
5								
6								
7								
8								
9								

1	2	3	4	5	6	7	8	9
2	4	6	8	1	3	5	7	9
3	6	9	3	6	9	3	6	9
4	8	3	7	2	6	1	5	9
5	1	6	2	7	3	8	4	9
6	3	9	6	3	9	6	3	9
7	5	3	1	8	6	4	2	9
8	7	6	5	4	3	2	1	9
9	9	9	9	9	9	9	9	9

Activities

1. Ask students to find as many patterns as they can. These may include:

- * columns and rows that are the same
- * symmetry and reflections
- * consecutive numbers
- * rows and/or columns that have the number 1 - 9.
- * the border numbers
- * diagonals
- * palindromes (1-4-9-7-7-9-4-1) (9-7-3-6-7-6-3-7-9)
- * odd and even numbers

2. What is the sum of each row and column?

3. Investigate the patterns around the centre square shown here.

- * the 9-3-6-9-6-3-9-3-6-9-6-3 spiral
- * numbers on either side adding to 9

1	2	3	4	5	6	7	8	9
2	4	6	8	1	3	5	7	9
3	6	9	3	6	9	3	6	9
4	8	3	7	2	6	1	5	9
5	1	6	2	7	3	8	4	9
6	3	9	6	3	9	6	3	9
7	5	3	1	8	6	4	2	9
8	7	6	5	4	3	2	1	9
9	9	9	9	9	9	9	9	9

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4. On different grids connect the same numbers (1 - 8) with straight lines. The 9's not in the border form a square in the middle. Are these shapes polygons? Are they symmetrical?

