Magic Squares

Magic squares are square arrays of numbers. They date back to ancient times when people believed they (like mathematicians) held strange mystic powers because of their special properties.

I. Add the numbers in each row, column, and diagonal in each magic square.
Row 1=___ Row 2= ___ Row 3= ___ Col 1=___ Col 2=___ Col 3=___ D1=___ D2=___
What do you notice???

103	19	79
43	67	91
55	115	31

Square 1

2/3	1/12	1/2
1/4	5/12	7/12
1/3	3/4	1/6

Square 2

Make a conjecture based on your computations:

II. Study the square below. Fill in the numbers to make the columns, rows, & diagonals all add to the same number. What is the magic number for this magic square? List the numbers from smallest to largest: _____
Is there a way you can find the number that is in the middle square using the sum or the sequence of digits? **Explain.**

16	2	12
	18	

III. Now use what you have found in the previous activity to **arrange the digits 0 – 8 in the square below** so that your arrangement is a magic square. (Hint: You may want to consider the arrangement of the previous magic square and some of the answers to the questions above before attempting to find the arrangement for this square.) Can you find the magic number for this square before you start putting in digits? IF so, **how**???

0 1 2 3 4 5 6 7 8

Discussion of conjectures.

For what topics (Ohio Academic Content Standards) might you use an activity like this one in your classes? What if one of your students asks you the question, "How many different magic squares are there with these digits (0 – 8)?"

IV. Create **"different"** magic squares based on the one using the numbers 0 – 8 above.