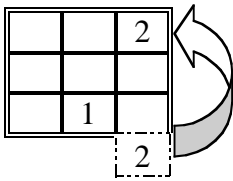


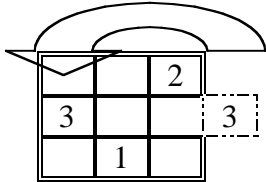
Activity Sheet 1: Muhammad's Construction of a 3 x 3 Magic Square

First Stage

You put a 1 in the middle of the lowest row. Next, look for its pair (Muhammad is referring to the cell that is diagonally down and to the right of the cell that contains 1). This should be the placement of the number 2. This particular cell, however, is not a part of the square. So put the 2 in the first position of that column.

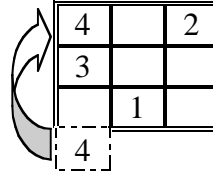


Now look for its pair and that is where the 3 should go. As in the previous case, the cell that is diagonally down and to the right of the cell with the 2 in it is no part of the square so this moves the 3 to the first position in that row.

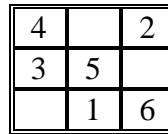


Second Stage

The pair for 3 already has a number in it so you need to begin the second stage. Starting with and including the cell that holds the last number placed in the square, the 3, count three positions going down. That is the placement of the number 4. This cell, however, is not in the square. So you must move the 4 to the top position in that column.

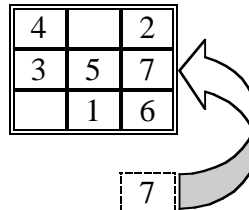


Its pair (the middle square) is where the 5 is placed. Then place a 6 as its pair.

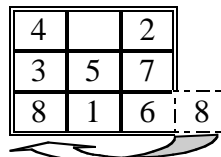


Third Stage

Starting with and including the cell that holds the last number placed in the magic square, the 6, count three positions going down. That is the placement of the number 7. This cell, however, is not in the square. So you must place the 7 in the second position in that column.



7 has no pair in the square. So place 8 in the first position in the lowest row.



Since 8 has no pair, put 9 in the highest position in the second column.

4	9	2
3	5	7
8	1	6

9

The 3 x 3 Magic Square using Muhammad's construction method is complete!

4	9	2
3	5	7
8	1	6

Muhammad's construction method for a 3 x 3 magic square can be generalized to construct a magic square of any odd order. Review the stages to construct a 3 x 3 magic square. Write the steps or an algorithm of how to construct a 3 x 3 magic square in your own words. Give your algorithm to a fellow classmate to read and see if they are able to follow your directions to create a 3 x 3 magic square.

After you have completed this algorithm write an algorithm for the construction of a 5 x 5. Exchange with a classmate to see if the steps were clear enough to follow.