		5		
	4		10	
3		9		15
2		8	14		20
1		7		13		19		25
6		12		18		24
	16		22	
		21		

MAGIC SQUARES

Is this a magic square?

3	16	9	22	15
20	8	21	14	2
7	25	13	1	19
24	12	5	18	6
11	4	17	10	23

Things to think about...

Is this a magic square? How do you know?

How many sums must you do to ensure that this is a magic square?

How many numbers make up this magic square?
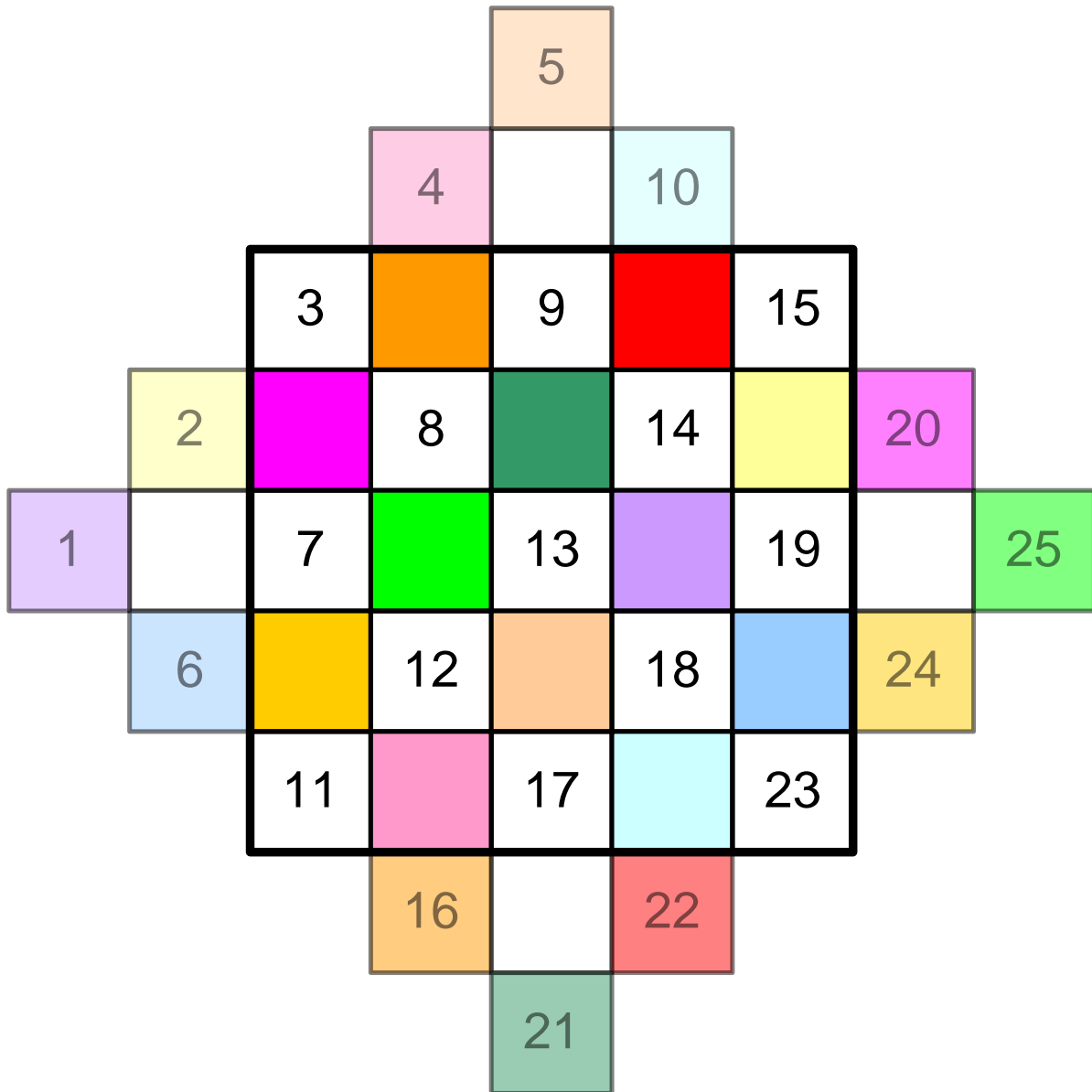
What is the lowest number?

What is the highest number?

Can you see any patterns in the arrangements of the numbers?

What is the magic number?

The magic square you have looked at was constructed using the step pattern for constructing magic squares whose side is an odd number of boxes long. (ie 1, 3, 5, 7 etc.)

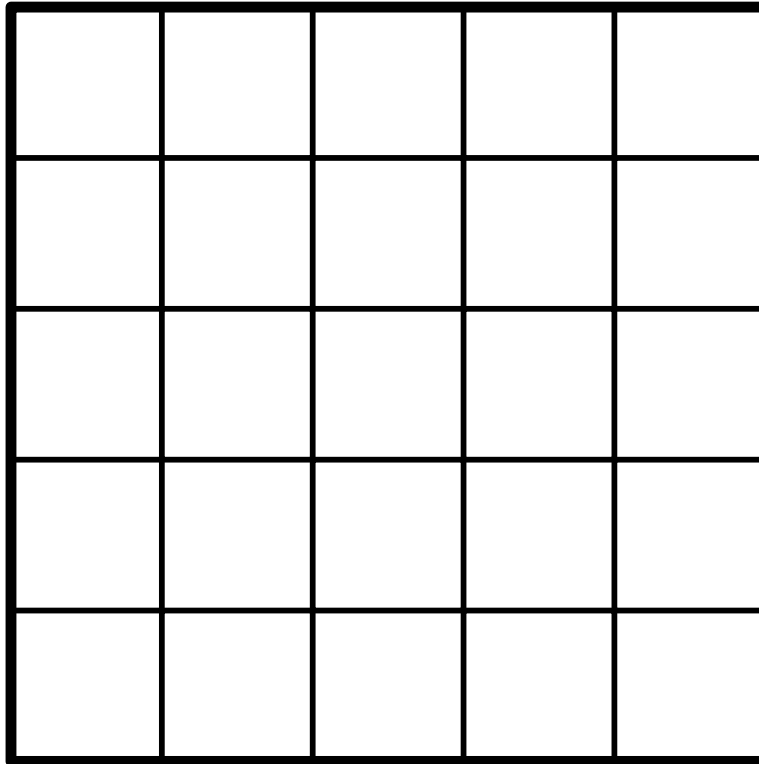Below, you can see how I constructed it.

I drew the steps around the square and then started numbering them at 1, 2, 3, ... 24, 25.

Then I moved the bright green 25 to the bright green block inside the magic square; the gold 24 moved to the gold block and then pink 20 moved to the pink block.

Use the template below to construct a square starting with a number other than 1. For example, you might start your count at 7, 8, 9, ..., 31, 32.
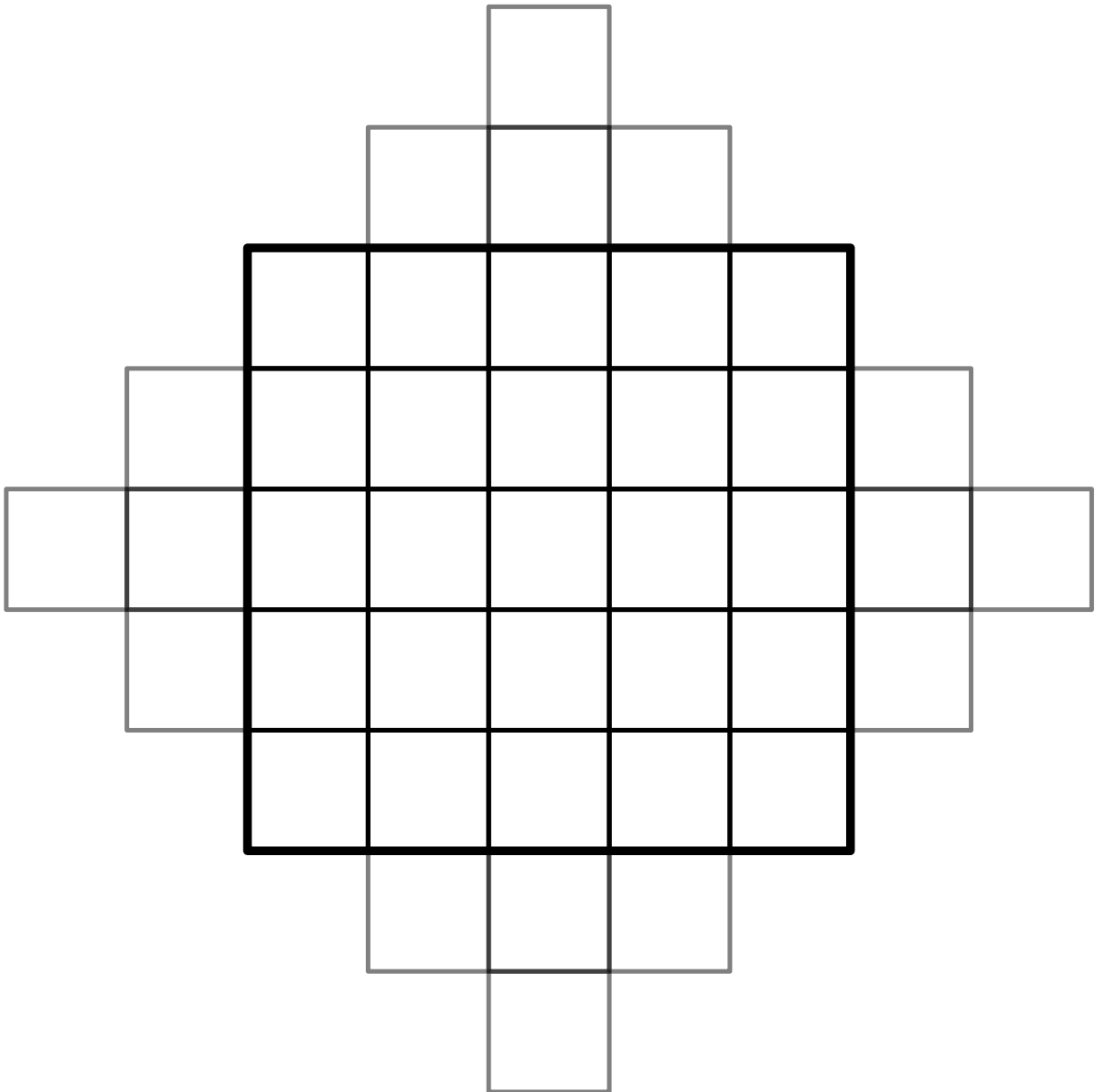
Once you have constructed your magic square, copy the numbers in their final positions onto the square on the next page.

<table>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Is this still a magic square?

What is the magic number?

Compare the magic square on page 2 with the one that you have made up here on page 5.

Number of squares on each edge	Lowest number in Magic Square	Magic Number

Does the magic number change?

What do you think causes it to change?

Using the magic square on page 2, write in each box a number that is double the number in the original magic square.
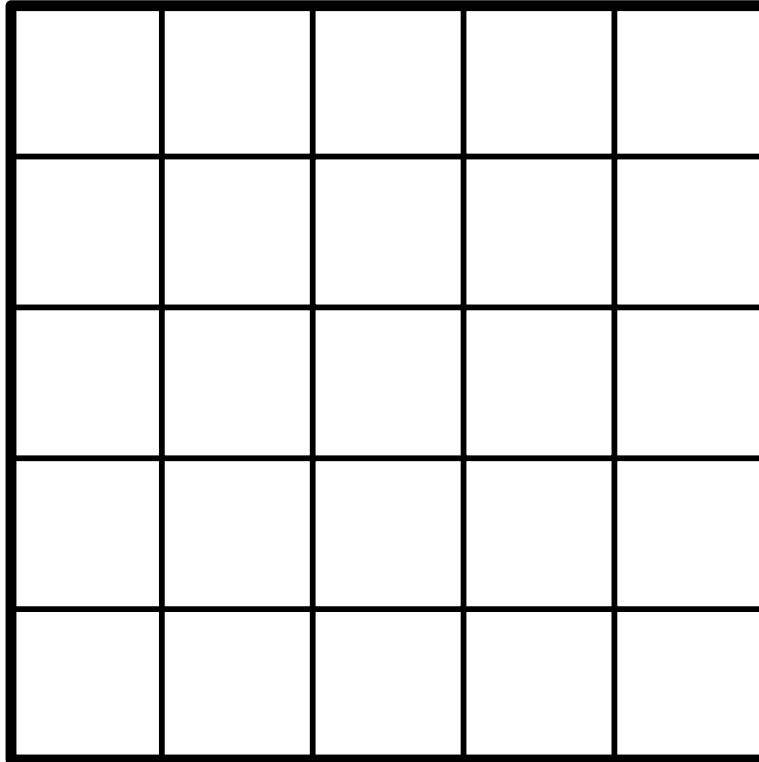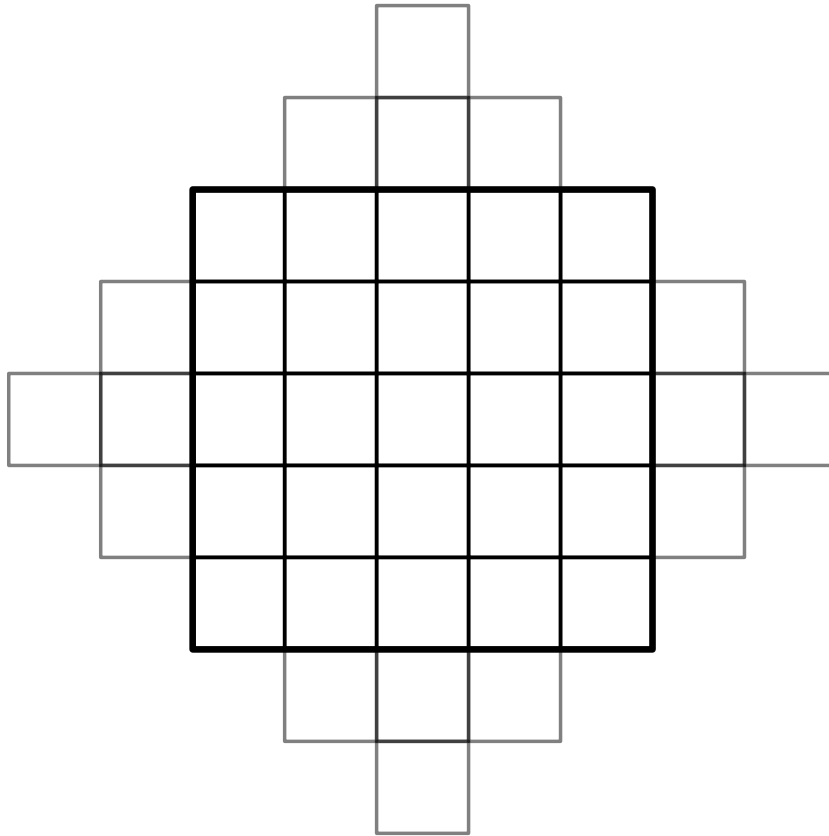
Is this a magic square?

What is the magic number?

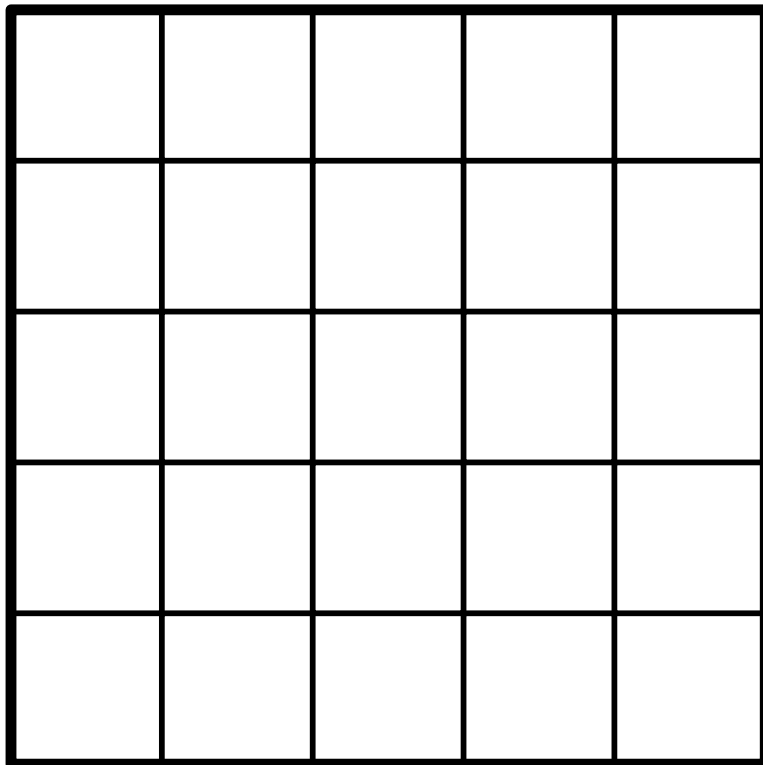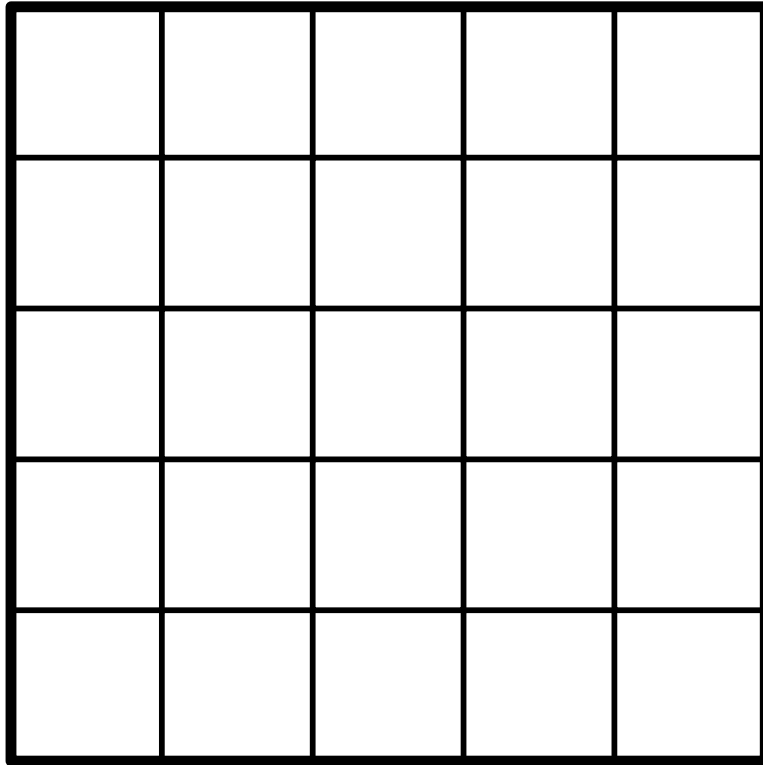What is the lowest number?

What is the highest number?

What is the jump between each number in this magic square?
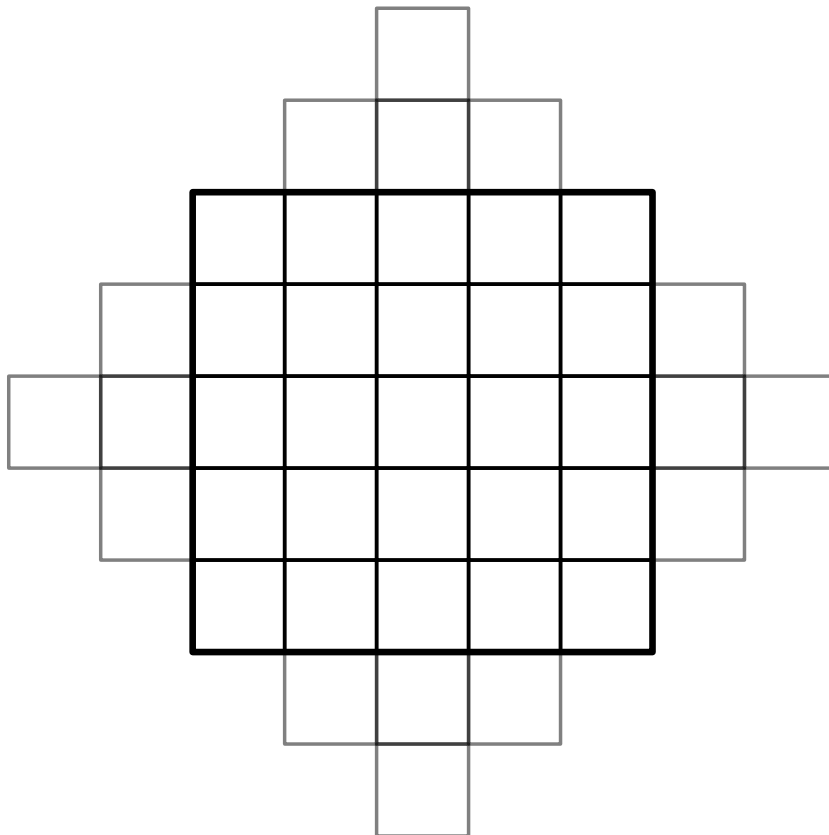
Try making some more magic squares with these templates. Use consecutive numbers (1,2,3, ... or 13,14,15,... etc.)
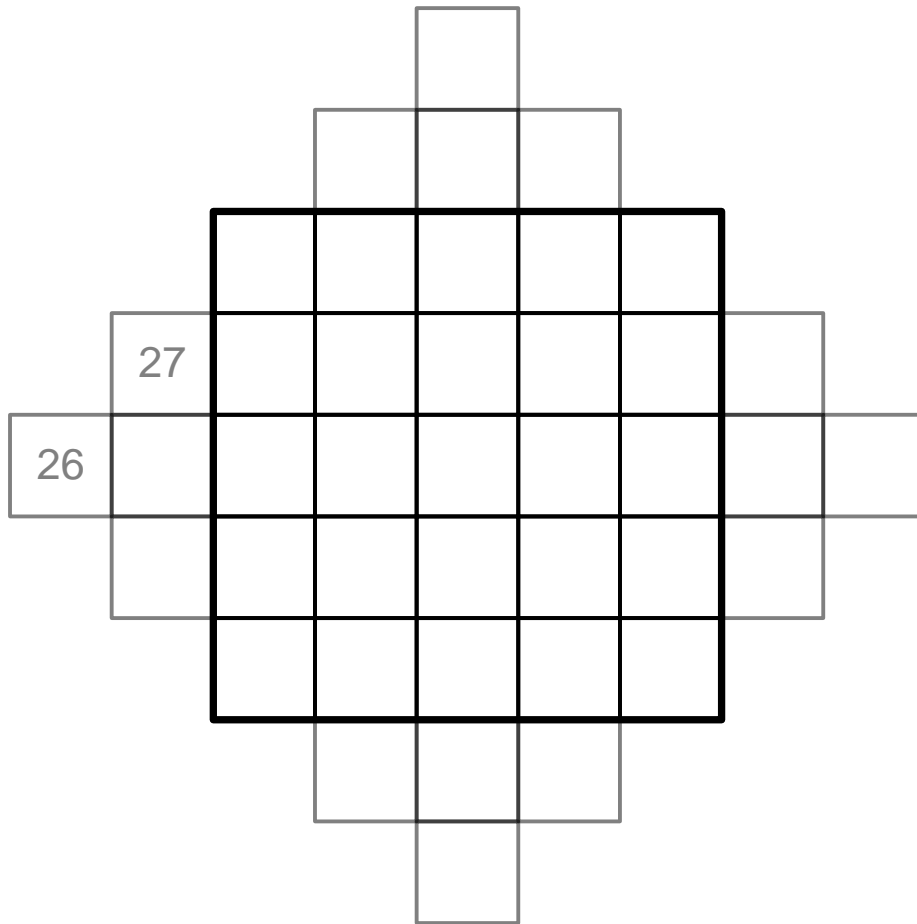
Draw your magic squares into the two squares below.

Start to compare your magic squares. Can you think what might affect the magic number of a magic square?

Number of squares on each edge	Lowest number in Magic Square	Magic Number

Can you use this information to predict what might happen if you had a magic square with five sides that started at the number 26? What would the magic number be?

27

26

Was your prediction correct?