



Put in the numbers 0, 1, 2, 3 and 4 in the squares so that the total across is the same as the total going down.

I found eight different ways of doing this. Can you find more than this?

Use the shapes on the next page to help you.



Year 3+ Investigation: across and down

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Answers

This is a fun investigation for children from Year 3 upwards (7+ yrs). Children will probably start this mini investigation with a lot of 'trial and improvement' and then come up with some correct solutions.

There are several key aspects to the logical thinking behind this, including:

1. Add up the total of 0, 1, 2, 3 and 4. It comes to 10.
2. This means that if the total across and the total down are equal and the corner number is zero, they must both add up to 5.
3. By working methodically with zero in the corner the following arrangements can be found:

0	1	4
2		
3		

0	1	4
3		
2		

0	2	3
1		
4		

0	2	3
4		
1		

0	3	2
1		
4		

0	3	2
4		
1		

0	4	1
2		
3		

0	4	1
3		
2		

Can you work out the totals of the column and row if the corner number is 2?...or 4?

I worked on putting 2 on the second square across and seeing how many ways, then 3, then 4. Altogether there are eight ways with 0 in the corner. The same is true when placing 2 and 4 in the corner square.

Can you work out the totals of the column and row if the corner number is 2?...or 4?

Don't expect children to work in this methodical way, but they should be beginning to find some strategies. They might well not realise that the total across and down has to be 5 until they have solved the problem several times, and even then they will probably not see why it has to be 5.

It's a good idea to have the numbers cut out so that they can be moved around easily. See page below.

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0

1

2

3

4

Lots more like this on the MathSphere, 'It's All Figured Out' worksheet CD www.mathsphere.co.uk