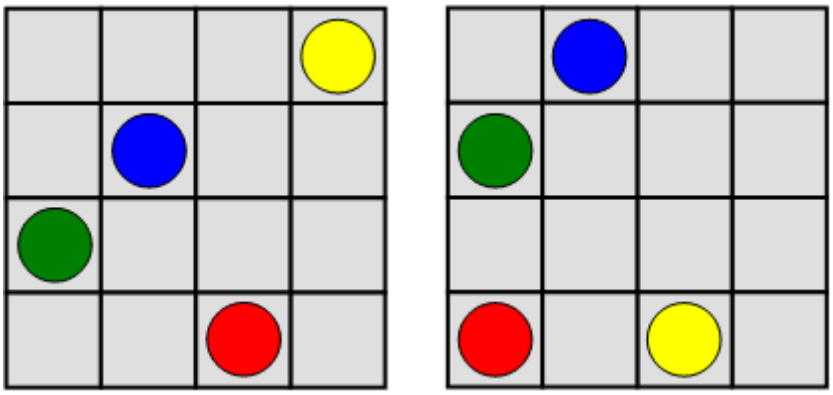
Colour Squares

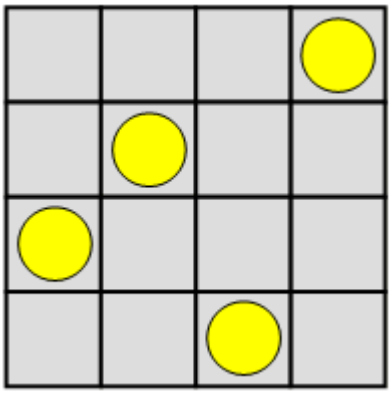
Fill the square on the left with red, yellow, green, and blue chips so that no row, no column and neither of the two long diagonals have two chips of the same colour. The four chips that are already there cannot be changed.

Do the same with the square on the right.



Extensions:

How many ways are there to complete the following square with the four colours?

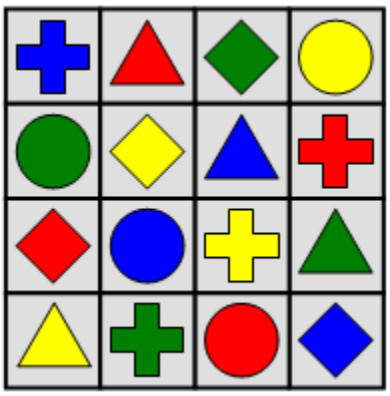


The objects below are arranged so that the rows and columns have neither duplicates in colour nor shape.

Is it possible to make an arrangement so that each long diagonal uses only one colour, but that neither of them duplicates a shape?

Is it possible to make an arrangement so that each long diagonal uses only one shape, but that neither of them duplicates a colour?

Is it possible to make an arrangement so that neither of the long diagonals duplicate a shape or colour?



The Math in This Problem:

In this investigation, students will work with different colours and shapes, having to discover the various arrangements, and whether or not some even exist. This conundrum involves analytical processing and mathematical logic, leading the kids to an introduction to mathematics and its relationship with shapes, colours, and arrangements.

Credits:

Original Problem by Ted Lewis of The Pacific Institute for the Mathematical Sciences