

# 4x4 Euler squares (aka "magic colour/shape squares")

By the way, *Euler* is pronounced *oiler*. He was a very famous Swiss mathematician.

What you need: four shapes in four colours each (16 pieces) plus a 4x4 grid

What you can do:

*level 0* : name the shapes, figure out which are the rows and which are the columns on the grid

*level 1* : make every row a different colour and every column a different shape

*level 2* : no **colour** appears twice in a row or in a column (*4 colours in each row, each column*)

*level 3* : no colour appears twice in a row, a column or in either of the two main diagonals

*level 4* : no **shape** appears twice in a row, column or main diagonals  
(shapes are often harder to work with than bright colours)

*level 5* : no **colour or shape** appears twice in a row or column

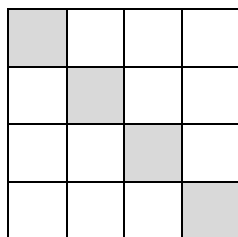
*level 6* : no colour or shape appears twice in a row, column or main diagonal

*There are thousands of ways to do each of these!*

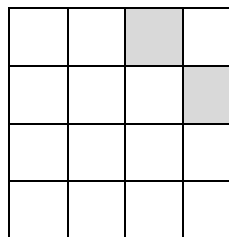
*You can also give a particular configuration as a starting point and ask the class to all solve the same puzzle.*

*For a big challenge, try use five shapes in five colours each! It is possible to avoid repetition not only on the main diagonals, but on **all** diagonals.*

*Once they understand what the game is about, children can be just as good at solving the puzzles as adults are, or even better.*



here a main diagonal is shaded



this is not a main diagonal

See the instructions on Latin squares for a technique that will let you solve a 4x4 Euler square.