9 unique four-color squares

MiniMatch-I™

Color-matching
Non-matching
Symmetries
Patterns
Game

A product of
Kadon Enterprises, Inc.

MiniMatch-I is a trademark of Kadon Enterprises, Inc., for its four-color puzzle set of 9 square tiles, each divided diagonally into 4 isosceles right triangles, with 6 tiles having all four colors; 2 tiles with 3 colors; and 1 tile with two colors.

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The MiniMatch-I Set

The 9 square tiles are divided diagonally into 4 small triangles each. Six tiles have four colors, each in a different order; two tiles have three colors, and one tile has two colors. Same colors are on opposite edges of the shared tile: a "bowtie". Only one of the four colors does not have a bowtie. In all, there are 8 little triangles of two colors and 10 of two other colors.

These 9 tiles can be placed into a 3x3 square (their tray) in a mind-boggling 23,781,703,680 different ways. That's 23 *billion* and does not include looking at the tray from four different sides. Eight tiles, however, can have four different positions individually, in relation to all the other tiles; the ninth tile has two different positions.

Among this multitude of assemblies we can search for those with rare and unusual properties, including some for which there may be only few solutions, or only one.

Here we present a variety of challenges for joining the 9 tiles within their 3x3 tray and for forming them into other shapes. You may think up others of your own.

Goals and Variations

Match by color. Match all tiles to their neighbors by color. Any of the 9 tiles can be in the center.Can you find a solution for each?

Wrap-around matching. Match all tiles to their neighbors, and have the outside edges match the outside edge on the opposite end of their row. So there will be 6 pairs of matched edges.

Non-wrapping match. Match all tiles that touch, with no two of the same color along any border nor on the opposite edges of any row. *Hard!*

Enclosed colors, matching. Find a matched solution where all the triangles of any one color form enclosed squares. Any of the 4 colors can be enclosed. For extra challenge, enclose two colors completely. That means only the remaining two colors will be on the outside edges.

Enclosed colors, solid borders. Find a matched solution where two colors are enclosed and the three edges along any border are the same color. For extra challenge, have all three edges of one border and its opposite side the same color. The other color will occupy the remaining two sides.
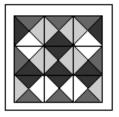
Non-matching symmetry. Arrange the 9 tiles so no two of the same color meet, yet the overall pattern will have symmetry for all 4 colors.

Mixed-match symmetries. Find placements of the 9 tiles so all 4 colors are symmetrical. You can have matched and non-matched sides meet.

Matched symmetry. Arrange the 9 tiles so that all touching edges match by color and all 4 colors are symmetrical.

A most spectacular solution. This pattern has all of these characteristics:

- All four colors are symmetrical.
- All tiles match by color on shared sides.
- Outside edges at all 6 row ends match.
- 4 squares each of three colors are enclosed.
- The fourth color is only on outside edges.

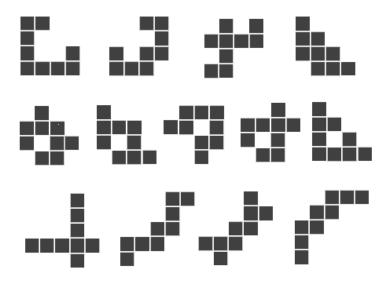If *you* find a solution with even more features, send us a picture of it!

Match—a game for 2 players

- *Start:* The tray empty on play surface between the players, all tiles face up, loosely spread around for both players to choose from.
- *Play:* Take turns choosing a tile and placing it into the tray, first piece in a corner. Each additional tile placed must join by color some tile already in the tray. Wherever two tiles meet, their colors must match. A player who can't match loses. If all tiles fit, both players win. *Optional:* Score 1 point for each square you form (maximum 12 squares can fit).
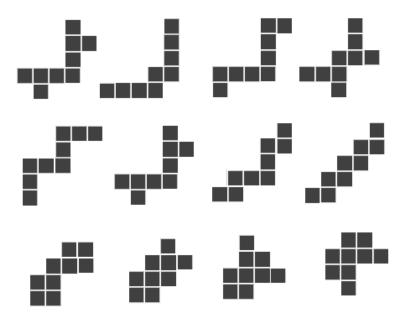
Fancy Patterns

Shapes with 9 squares joined are also known as enneominoes. There are 1285 distinct shapes. Here we show all but two of the symmetrical ones, including diagonal, mirror, and rotational symmetries. See how many non-symmetrical ones you can find.
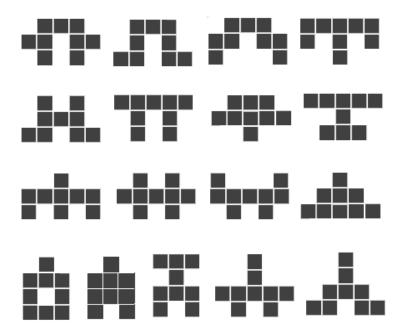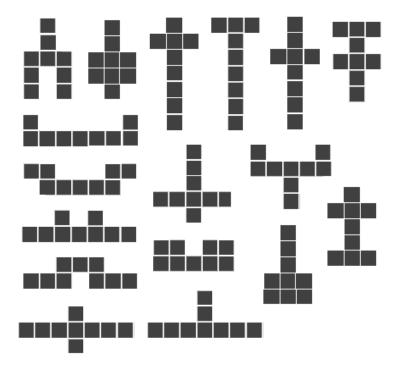
Diagonal symmetry

More diagonal symmetry figures

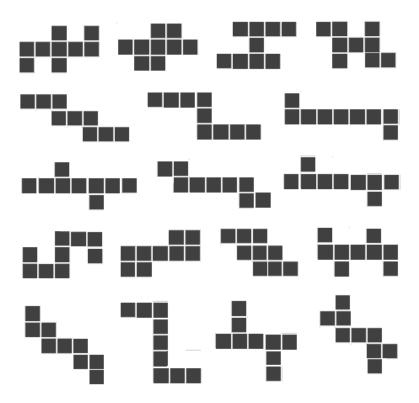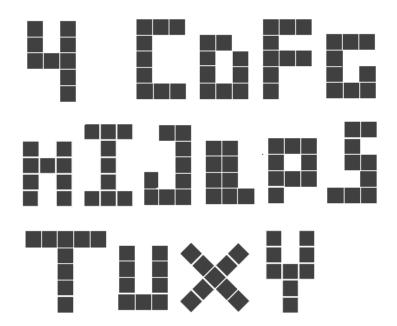7

Vertical (mirror) symmetry
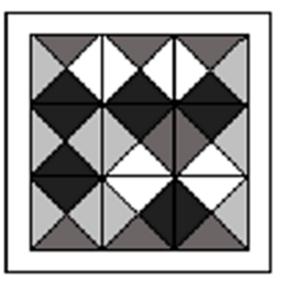
More vertical symmetry figures

Rotational symmetry

Characters

How many other letters or numbers can you form and still match all colors?

Two colors fully enclosed, opposite pairs of borders match.

MiniMatch-I™ *by Kadon*

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