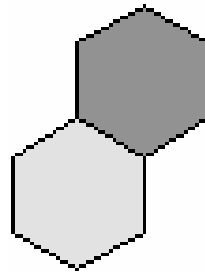


1 to 4 players
Ages 8 to adult

Hexdominoes[®]

Tiling fun with 6 colors of hexes and dihexes



Tiling challenges
Puzzle designs
Game rules



*A product of
Kadon Enterprises, Inc.*

Hexdominoes™ is a trademark of Kadon Enterprises, Inc., for its set of 21 dihexes and 6 monohexes in every combination of 6 colors. This family of puzzle pieces was independently proposed and studied by Paulo Bouhid in Brazil and Glenn Iba of the U.S., and developed and named by Kate Jones of Kadon Enterprises, Inc.

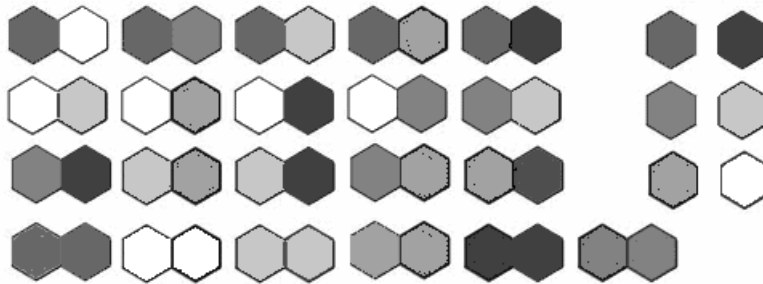
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The beautiful Hexdominoes acrylic tiles are lasercut and hand-inlaid by
Kadon Enterprises, Inc.— Pasadena, MD 21122
www.gamepuzzles.com

INTRODUCTION

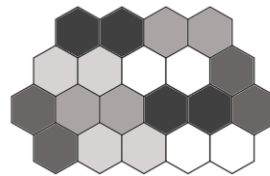
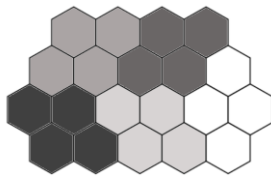
Regular dominoes are paired squares, in combinations of pips from 0 to 6, yielding 28 different tiles for a standard set. For Hexdominoes we've paired hexagons in every combination of six colors, yielding these 21 tiles (*dihexes*) plus one single hex in each color:



Three investigators of this set and similar sets have contributed to the development and wealth of material for Hexdominoes: Paulo Bouhid (paulo.bouhid@gmail.com), a designer from Brazil, supplied figures for “Latin” arrays, where no duplicate color appears in any row; Glenn Iba, a mathematician from California, created unique-solution “Hexmate” patterns; and Kate Jones of Kadon Enterprises, Inc., producers of the world’s most beautiful recreational math puzzles and games since 1980, found separations, symmetries, patches and games.

The puzzle challenges for Hexdominoes are based mostly on creating color patterns and solving relationships. Four major themes are offered, in ascending levels of difficulty. Depending on the size of the figure and the number of colors to be used, you can explore solutions like these:

- **Color patches** (groupings of 2, 3, 4 or more adjacent cells of the same color). The first figure below shows 5 “quads” (patches of 4 like-colored cells joined). The second one has 10 pairs. In this 20-cell figure, only 5 colors were used.



- **Color separations.** In the left figure below, no two cells of the same color touch (using 5 colors). In the right figure, there are no two of the same color in any row, horizontally nor along either diagonal. It took 6 colors to accomplish that. These are called “Latin” arrays. In Latin arrays, a row of cells counts as a single row even if there are gaps in it.



- **Hexmate challenges.** Replicate the patterns provided with the indicated sets of pieces, matching color to color. Which adjacent cells belong together as one piece is for you to determine. These puzzles all have unique solutions.
- **Color designs.** Enjoy creating symmetry patterns, pinwheels, daisies, stripes—whatever your imagination suggests. This is the playable art aspect of the Hexdominoes set.

Not every figure we provide in this book can be solved with every color theme. Some are quite hard, and a few may be impossible to solve. For those Latin arrays we show as unsolved, send us a solution or prove it impossible, and win a prize if yours is the first result received. Winners will be listed on our website, www.gamepuzzles.com. Send to:

By groundmail: Kadon Enterprises, Inc., 1227 Lorene Drive, Suite 16, Pasadena, MD 21122.
By email: kadon@gamepuzzles.com.

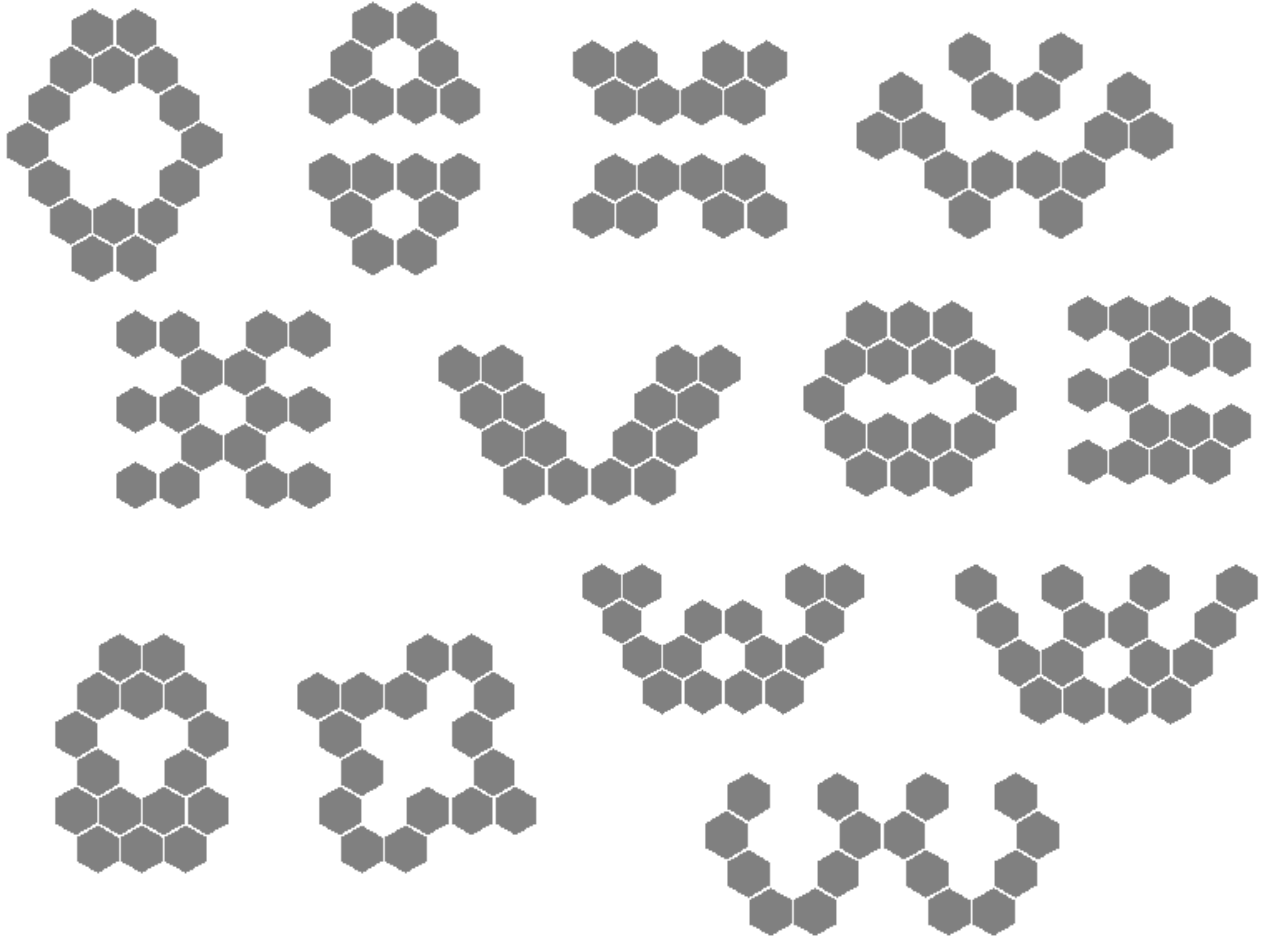
Happy puzzling! Start with the small, easy ones first.

We thank Thomas Atkinson and Glenn Iba for helpful suggestions for the several strategy games included in this booklet. The Hexdominoes are an endless pleasure for play and improvisation.

16 Cells

Use just the two-color dihexes and single hexes of the 4-color subset (omit all solid-color dihexes and the single hexes of the unused two colors):

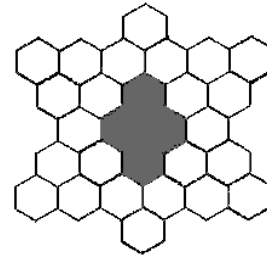
1. Fill each shape so no two cells of the same color touch.
2. Fill each shape with no two of the same color in any row. Rows with gaps still count as a single row, including the split figures in the first row.
3. Fill shapes so that all colors are in pairs (see back cover). Which shapes won't solve?



24 Cells

Use any 12 of the 15 two-color hexdominoes:

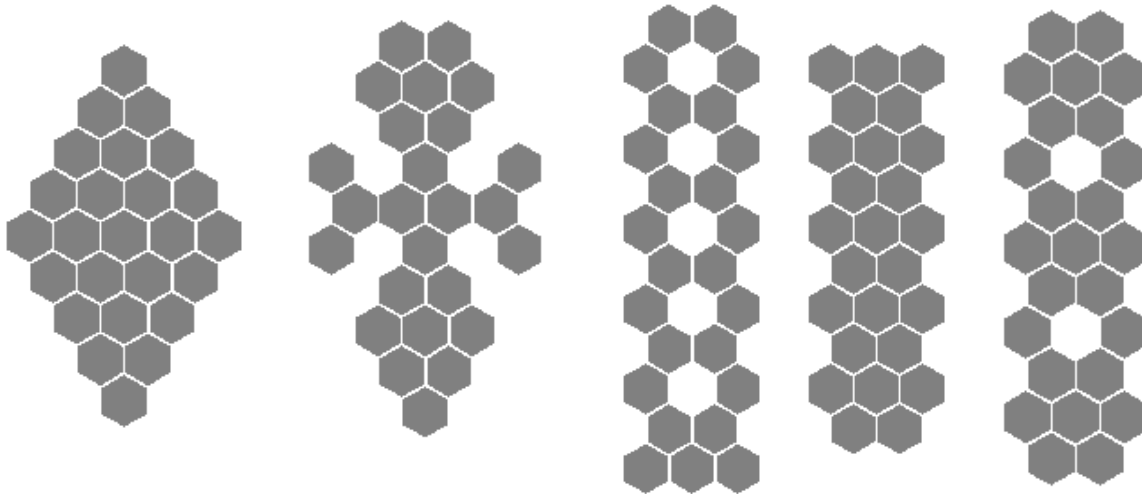
1. Fill the shape so no two cells of the same color touch.
2. Fill the shape with no two of the same color in any row (there are 6 rows of 6 cells, 2 rows of 4 cells, 4 rows of 3 cells, and 5 rows of 2 cells). Note that many of the rows span across the center hole.

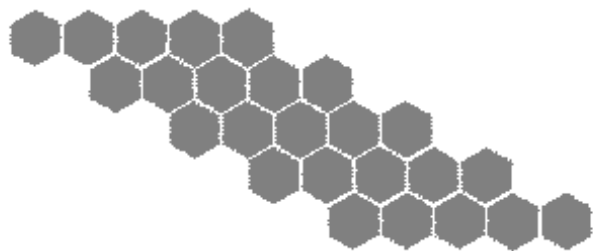
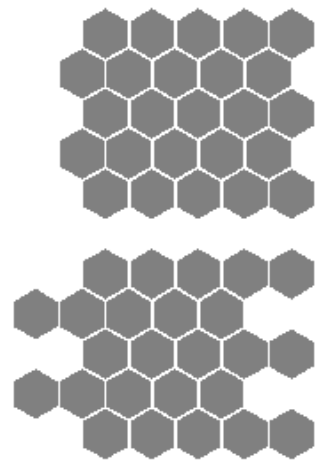
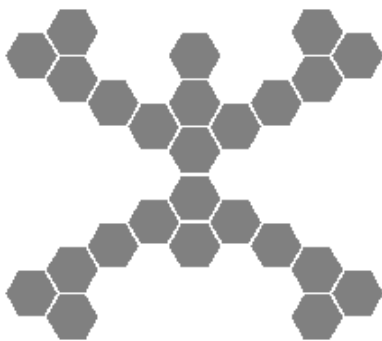
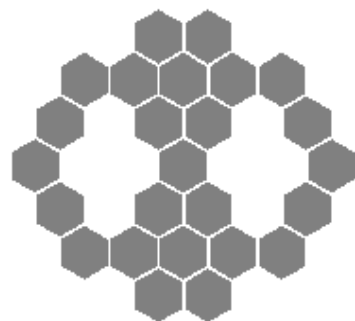
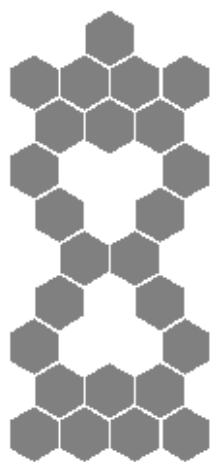


25 Cells

Use just the two-color dihexes and single hexes of the 5-color subset (omit all solid-color doubles and the single hex of the unused color):

1. Fill each shape so no two cells of the same color touch.
2. Fill each shape with no two of the same color in any row. Rows with gaps still count as a single row.
3. Fill where possible so that there are no single patches of color, only doubles and triples.

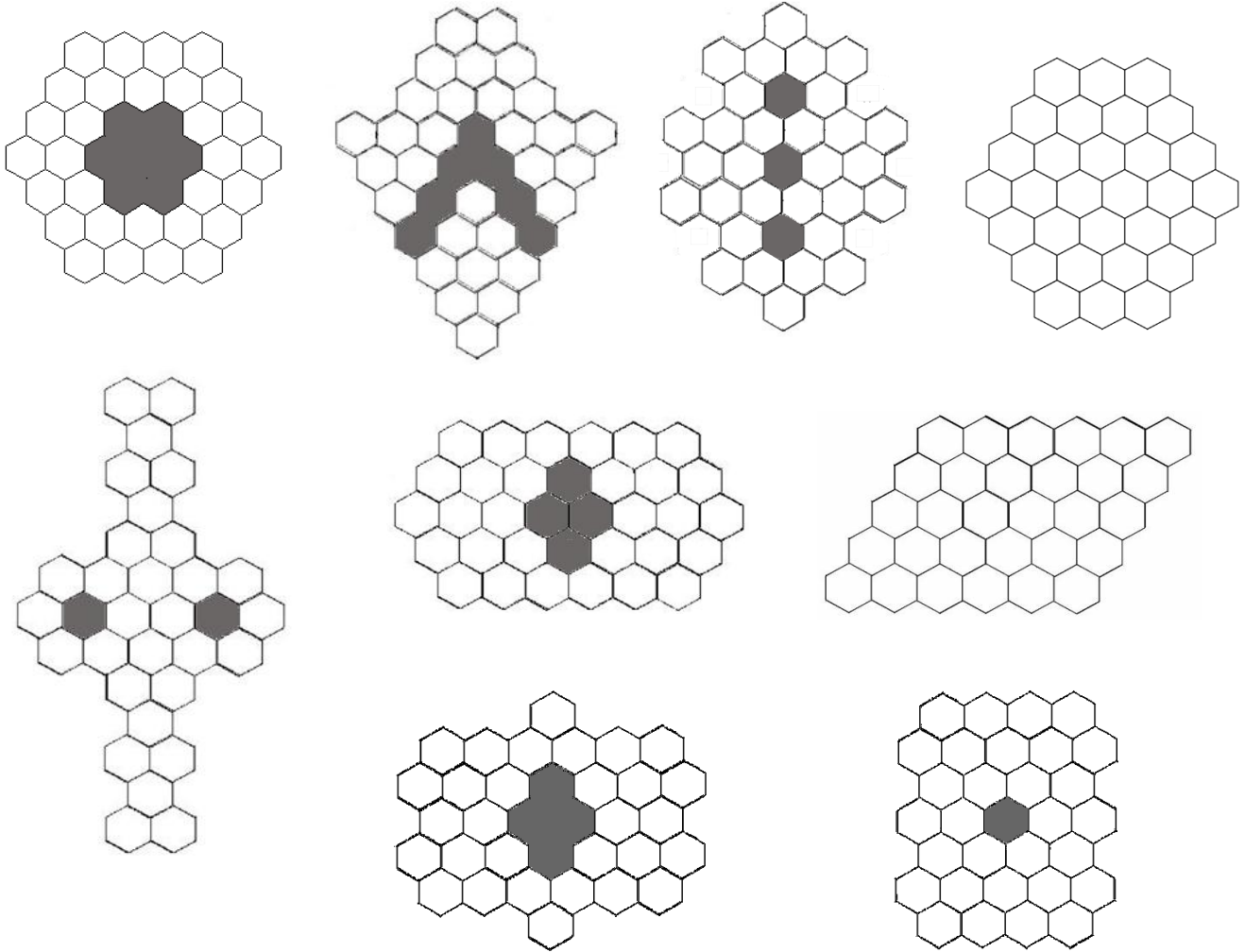




30 Cells

Use just the 15 two-color dihexes (omit solid colors and the 6 singles)

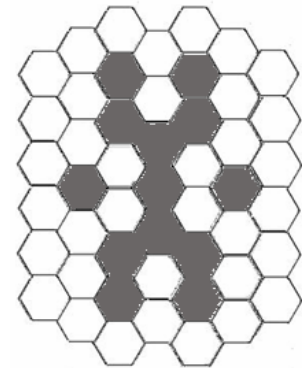
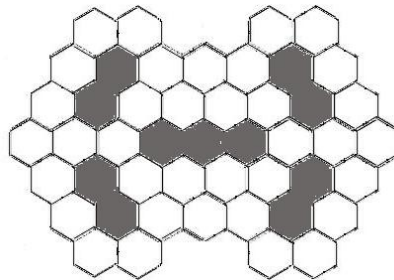
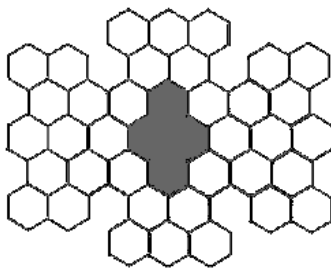
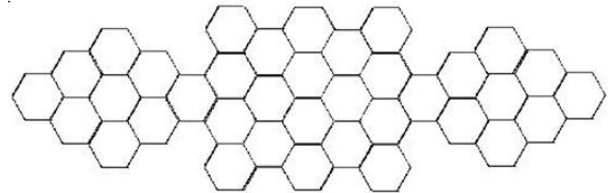
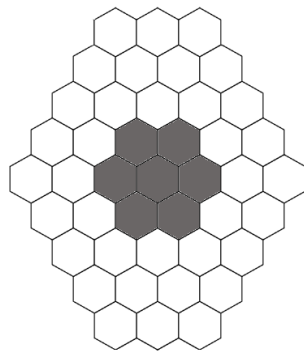
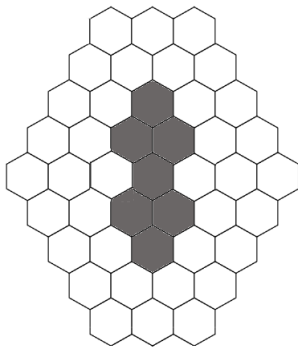
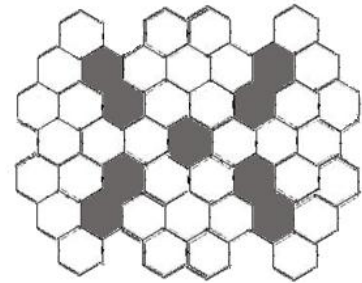
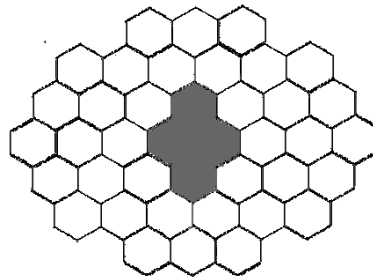
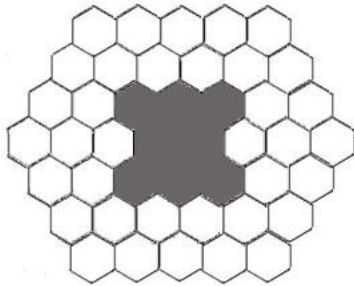
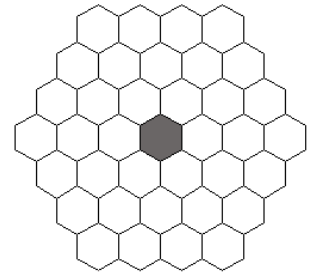
1. Fill each shape so that no two cells of the same color touch.
2. Fill each shape so that no row, horizontally and along either diagonal, contains more than one cell of the same color.
3. Fill where possible so that there are no single patches of color, only doubles and triples.

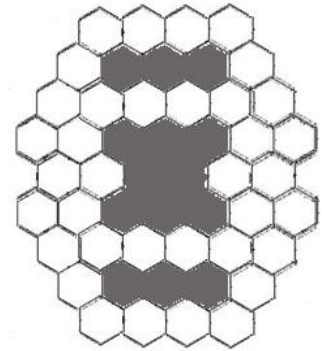
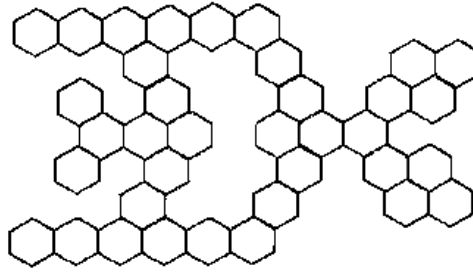
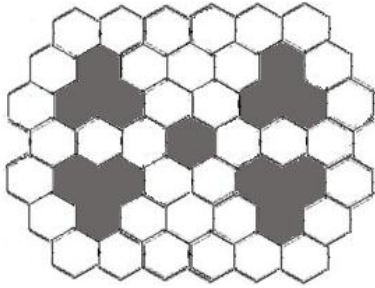
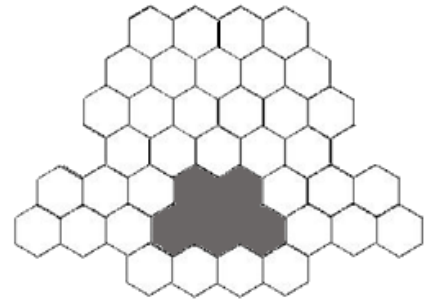
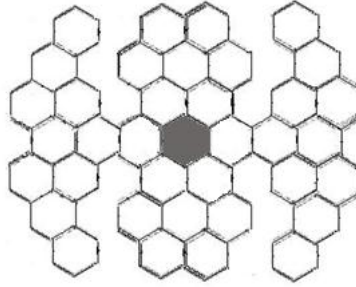
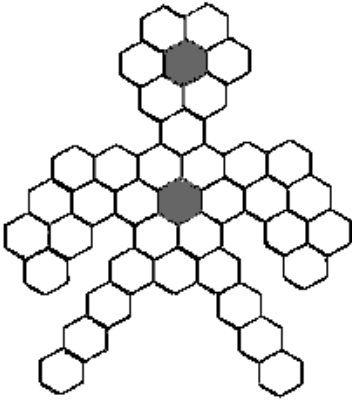


36 Cells

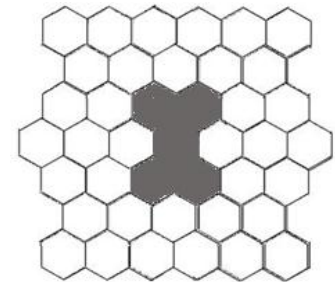
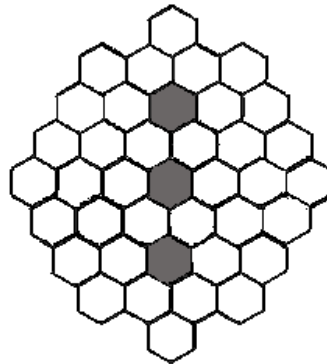
Use the 15 two-color dihexes plus the 6 singles (omit the 6 solid doubles):

1. Fill each shape so that no two cells of the same color touch.
2. Fill each shape so that no row in any direction has more than one of any color.
3. Fill each shape so that all colors are in pairs (see back cover).
4. Which shapes can have all colors in groups of 3 (trios)?

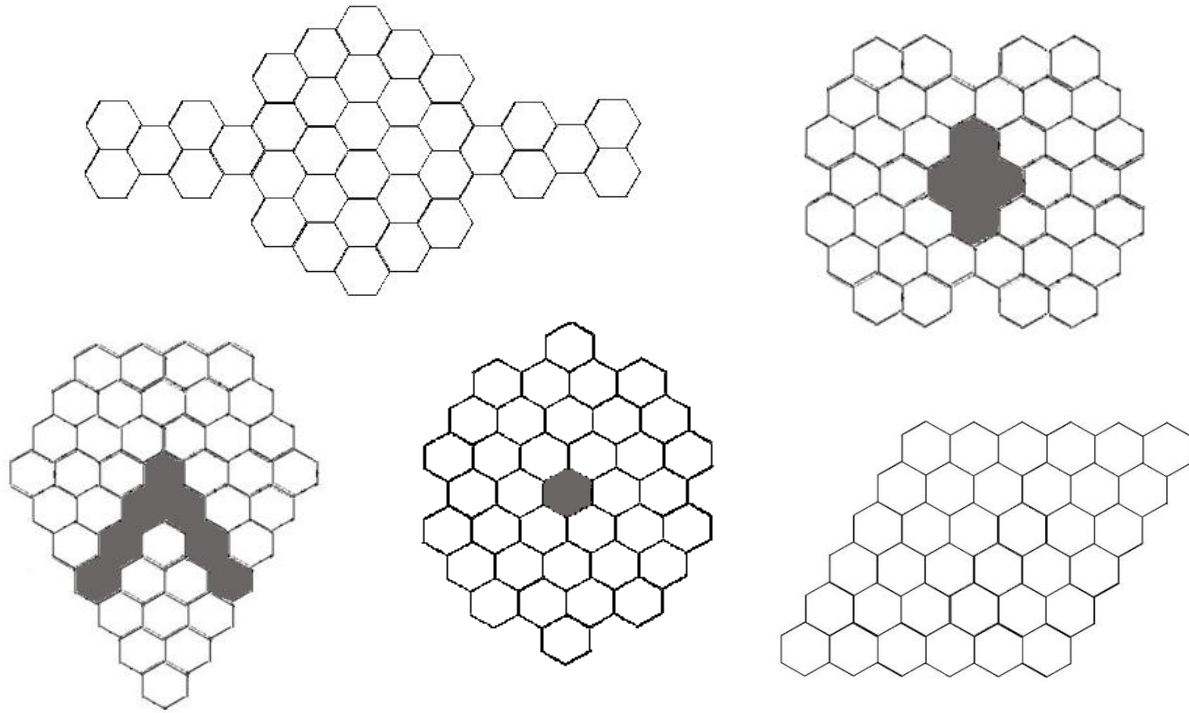




The two figures at right are not solvable for goal number 2, as verified by computer. We thank Andy Snowie for this finding. They do, however, make very attractive color designs for the other three goals.

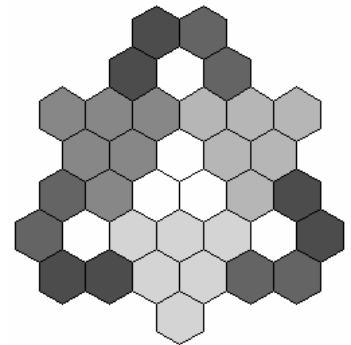
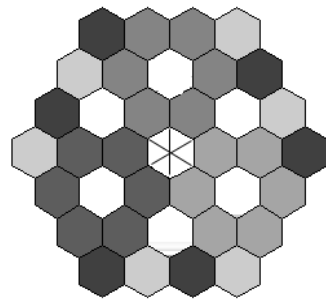
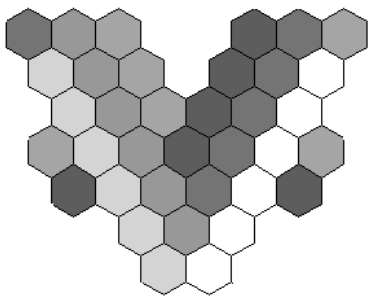
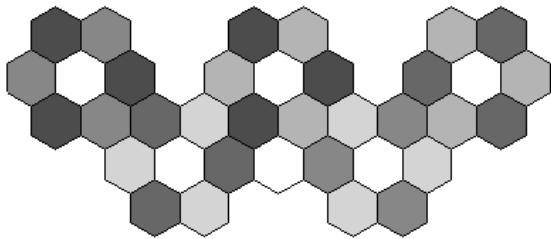
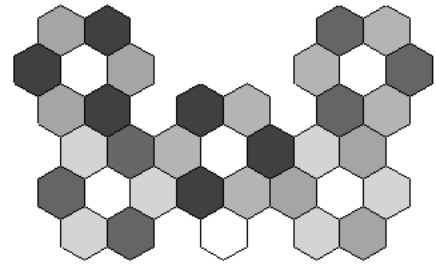
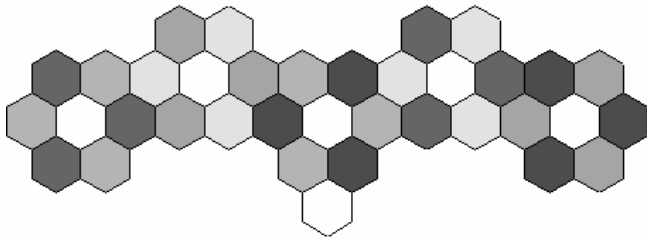
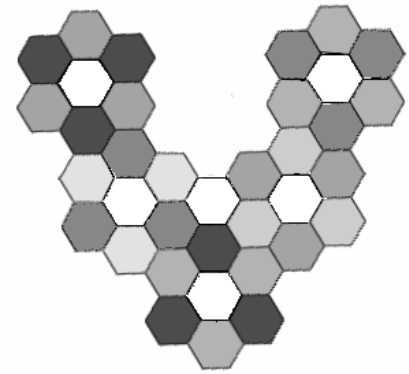
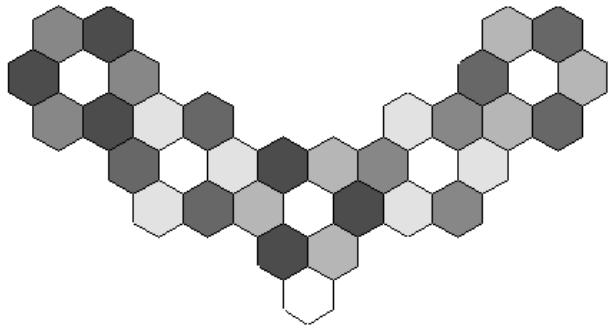


Can any of the following 5 figures be solved for goal 2? We don't know. First solvers to send us a solution, or proof that no solution exists, will win a prize. Solving goals 1, 3 and 4 for these figures should not be too difficult.



Pinwheels and Daisies

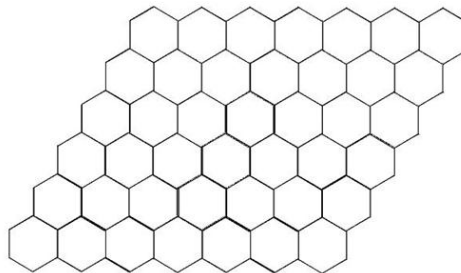
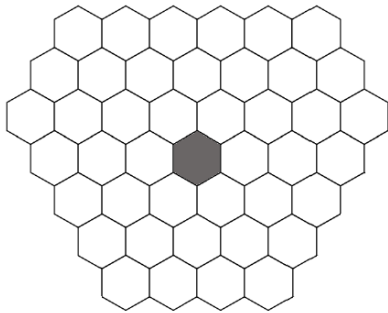
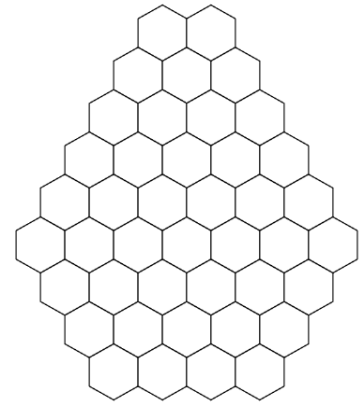
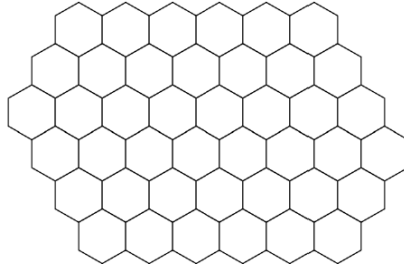
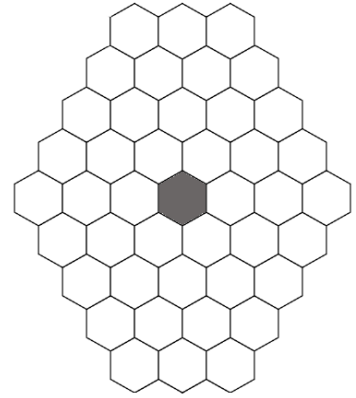
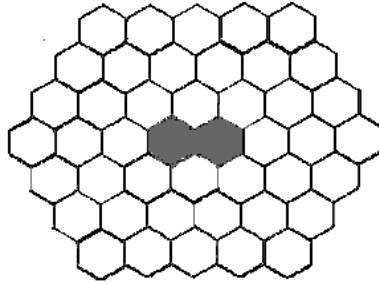
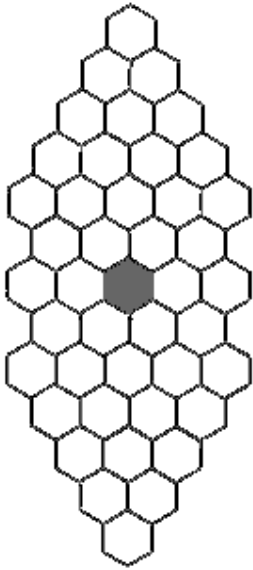
Still using all but the 6 doubles, form pretty color patterns of pinwheels (alternating colors around hexrings) or rings of one color, with a single color in each center. See patterns on next page. You can also form all 6 hexes of one color into triangles, or make a striped butterfly. Be creative—make your own designs. How much symmetry can you create?



42 Cells

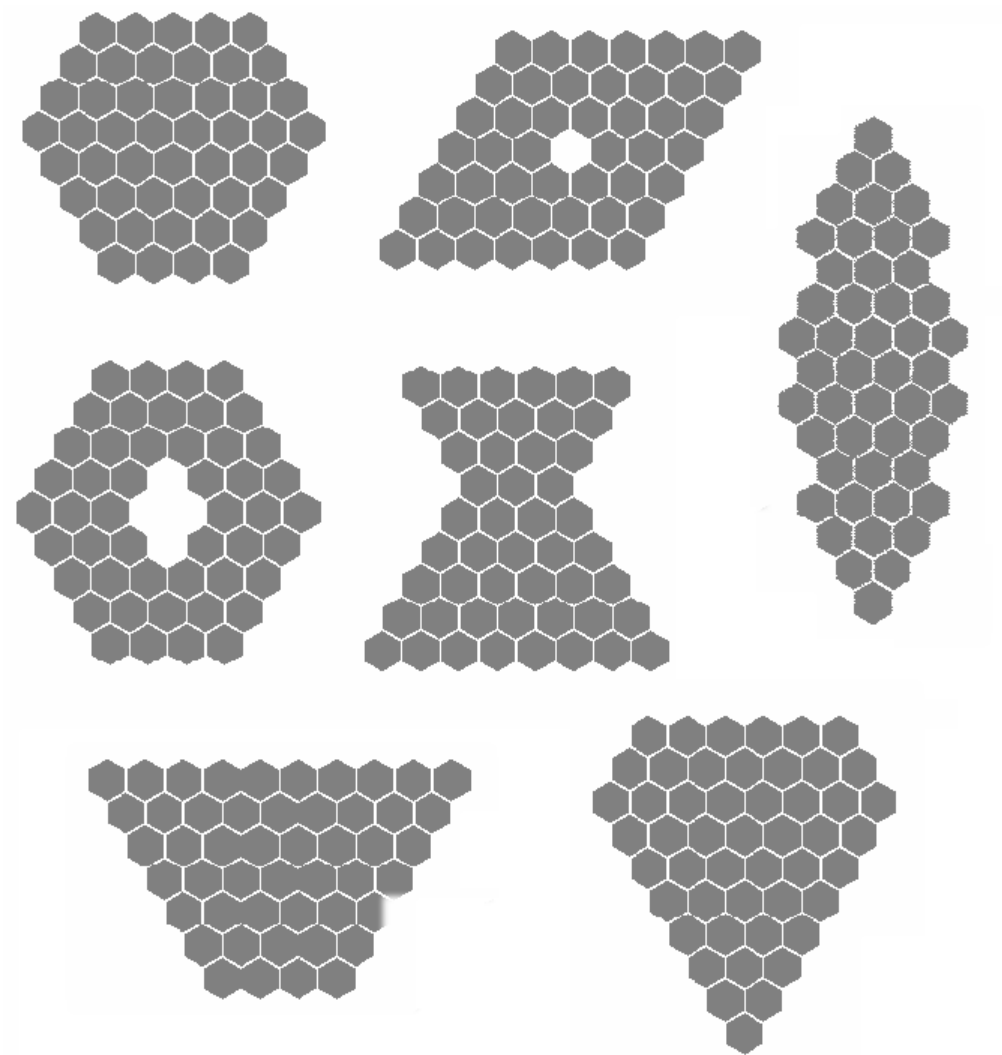
Use all 21 hexdominoes (omit the 6 singles) so that:

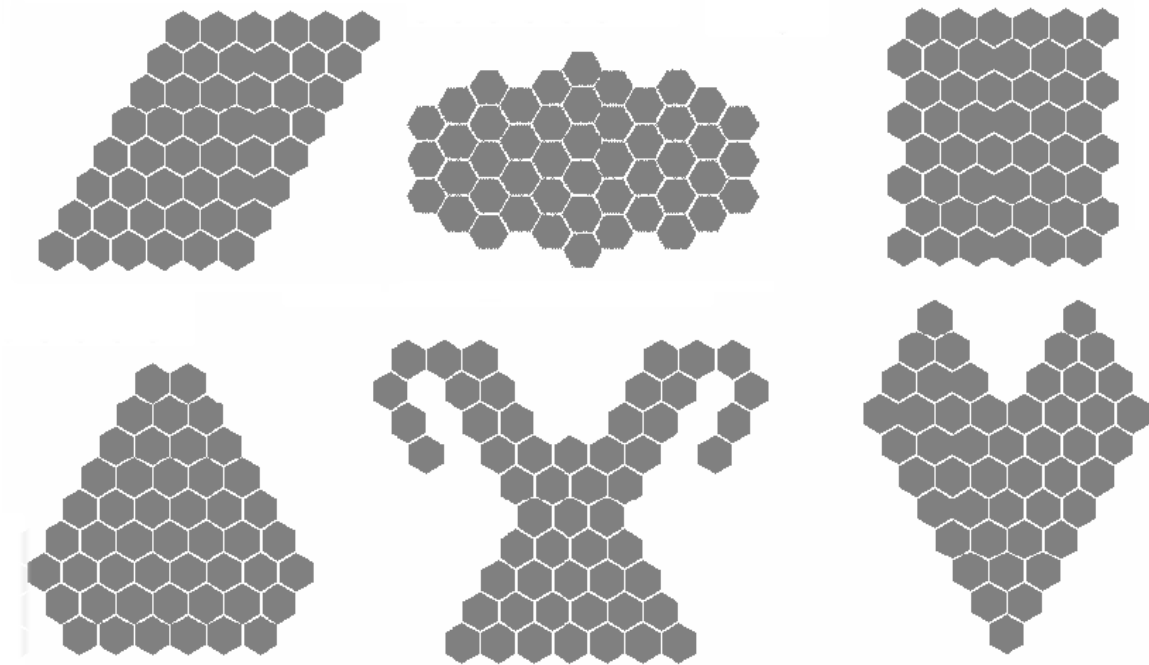
1. Not more than two of the same color are in any row.
2. There are no single hexes—only pairs and trios.
3. Each color forms a quad, double and single.



48 Cells

1. No two of the same color are together except the 6 doubles.
2. All color regions are exactly two hexes in size.
3. All color regions are exactly four hexes in size.
4. No row in any direction contains more than two hexes of the same color.
5. Form other shapes and arrange the colors in pretty patterns.

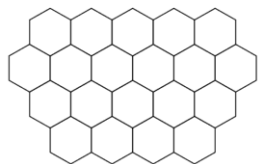




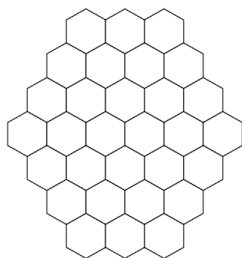
HEXMATE™ Challenges

by Glenn Iba

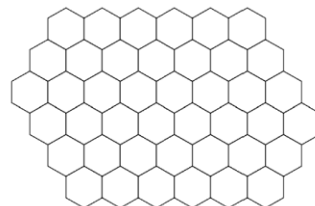
We provide the 4 grids below in full size for five different challenges each. Match tiles to the colors shown on the miniature patterns. A further collection of “Singleton Challenges” offers one-of-a-kind shapes where the single hexes do not touch each other (hint!). The tiles to use for each are specified on the accompanying Color Chart. Solutions are unique.



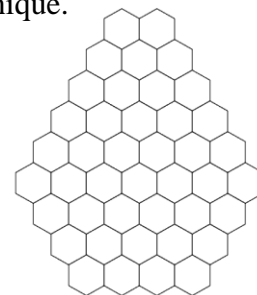
4-color “Bowl”



5-color “Barrel”



6-color “Oblique”



6-color “Pinecone”

HEXDOMINOES™

A game of strategy for two to five players

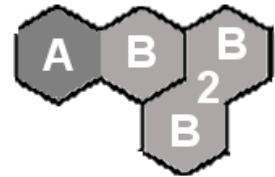
Start: Set the singles aside. Players choose one dihex at a time until the 21 dihexes are equally divided among the players: 10 each for two, 7 each for three, 5 each for 4, and 4 each for 5 players. The left-over tile is placed on the table as a starter piece. With 3 players, place one of the singles as a starter tile. Have score sheet and pencil handy to record scores on every turn.

Play: Players take turns adding one tile from their “hand” to the array on the table, always touching at least 2 edges and matching at least one edge by color. Score points for how many matched hexagon edges your move touches. Where additional non-matched edges touch, they get no point value. Score bonus points by size of area for any color patch of 3 or more cells your move has formed. If you have no matching move, pass that turn. Here are some sample moves:

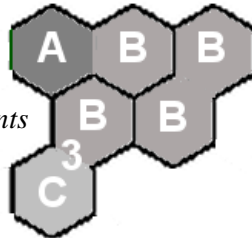
Starter tile



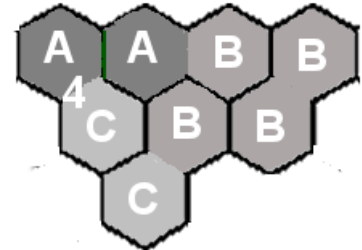
*Add double color to match B,
score 2 edges plus 3 points for
color patch*



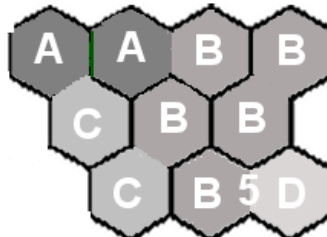
*Add dihex to match B,
score 2 edges plus 4 points
for color patch*



*Add dihex to match
A and C, score
2 points*



*Add dihex to match B,
score 2 edges plus
5 points for color patch.*



Win: Add up the scores after all tiles are played or when no more tiles can be played. High score wins. In case of ties for highest score, all those players win.

HEXTREMITY™

A game of strategy for two to four players

Start: Set the 6 singles aside as scoring markers. Place one of the solid-color dihexes on the table as a starter tile. Have the remaining dihexes alongside the playing surface in a common pool. Keep a score pad and pencil handy to record players' scores on every turn.

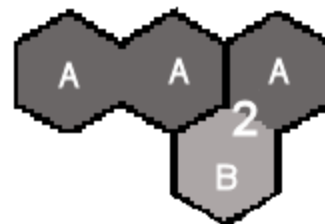
Goal: To form long rows of colors and earn points.

Play: Take turns selecting a tile from the pool and placing it against a tile or tiles already on the table. At least 2 edges must touch and at least one edge must match by color. Colors must continue in the same direction established when two hexes of the same color are together. When there is only a single hex of color, the next player must extend it to at least two and set the direction of its row. Examples:

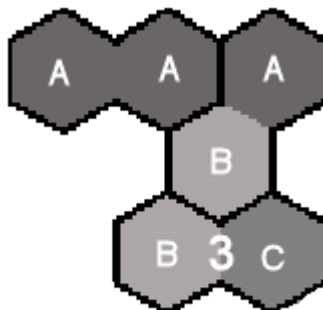
1. Starter tile—a solid-color dihex in color A (no score).



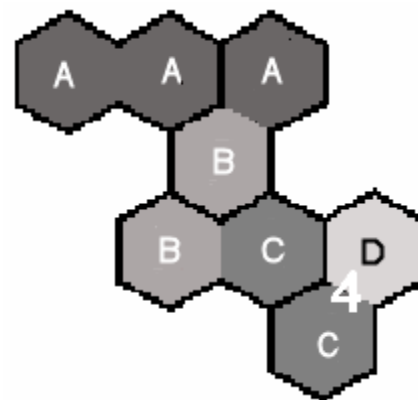
2. Second tile placement—a two-color tile matched to color A and in line with it, touching two edges and introducing a new color, B. Player scores 3 points for length of row A.



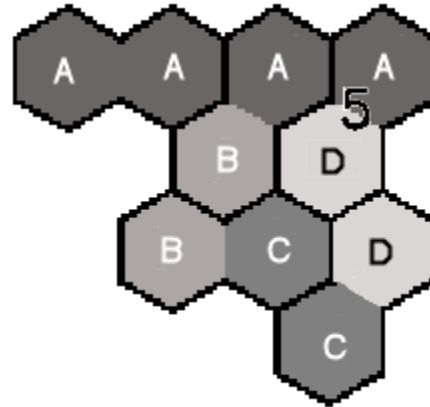
3. Third placement matches color B, establishing its row down and to the left and introducing color C. Player scores 2 points for length of row B.



4. Fourth placement matches to color C and introduces color D. Player scores 2 points for length of row C.



5. Fifth placement establishes row D and extends row A. Player scores 2 points for row D and 4 points for row A.



Continue placing tiles, always building single hexes into rows and extending rows where possible. Each formation and extension of a row scores the number of points in the new length of the row. So the same row may score again and again as it grows. A player who places the last possible tile of a color into a row of at least length 5 wins the single hex of that color as a scoring marker. A color may end up forming more than one row.

Win: When all tiles have been played out, add up each player's point score and add to it a bonus equal to the length of all the rows for which the player earned a marker. Highest point total wins.

Strategy hints: Because unpaired hexes of a color must immediately be joined by another of the same color and begin forming a new row, you can sometimes cause the other player to get shorter rows by placing the singleton away from other rows where the next move could match two rows simultaneously.

The solid-color doubles are powerful in gaining a growth of two units in one turn. Just remember, you can't use them as long as there is an unpaired color to play against.

It is allowed to have gaps in a row that may or may not be filled on future turns. Only fully connected rows count for your score. With a gap, only the connected part you've extended counts. Once you close the gap, the full row scores.

Hexpatch™

A strategy game for two players

Start: Each player chooses 3 colors and takes all the tiles that contain just those colors, both dihexes and singles. Among the remaining 9 tiles that carry both players' colors, give each player 4 tiles at random or by choosing. The last remaining tile goes on the table as a starter piece.

Goal: To place tiles so as to form the largest connected area of any one of one's own color, and to build the largest connected region of all of one's own colors.

Play: Take turns placing a tile from your hand to match a tile already on the table. While seeking to connect as many of your own colors as possible, you'll need to block the other player's colors from forming large patches. On each turn, your tile must match by color at least one edge of another tile. Other contact edges need not match.

Win: When all tiles have been played, count the number of hexes in each player's three largest color patches and add them together. Then count the largest connected area that all your colors make and add that to your score. Highest total wins. Here is a sample ending and its scoring:

White's 3 largest patches are 5C, 4B, 4A.

White's largest connected area is 21.

White's total is $5+4+4+21 = 34$

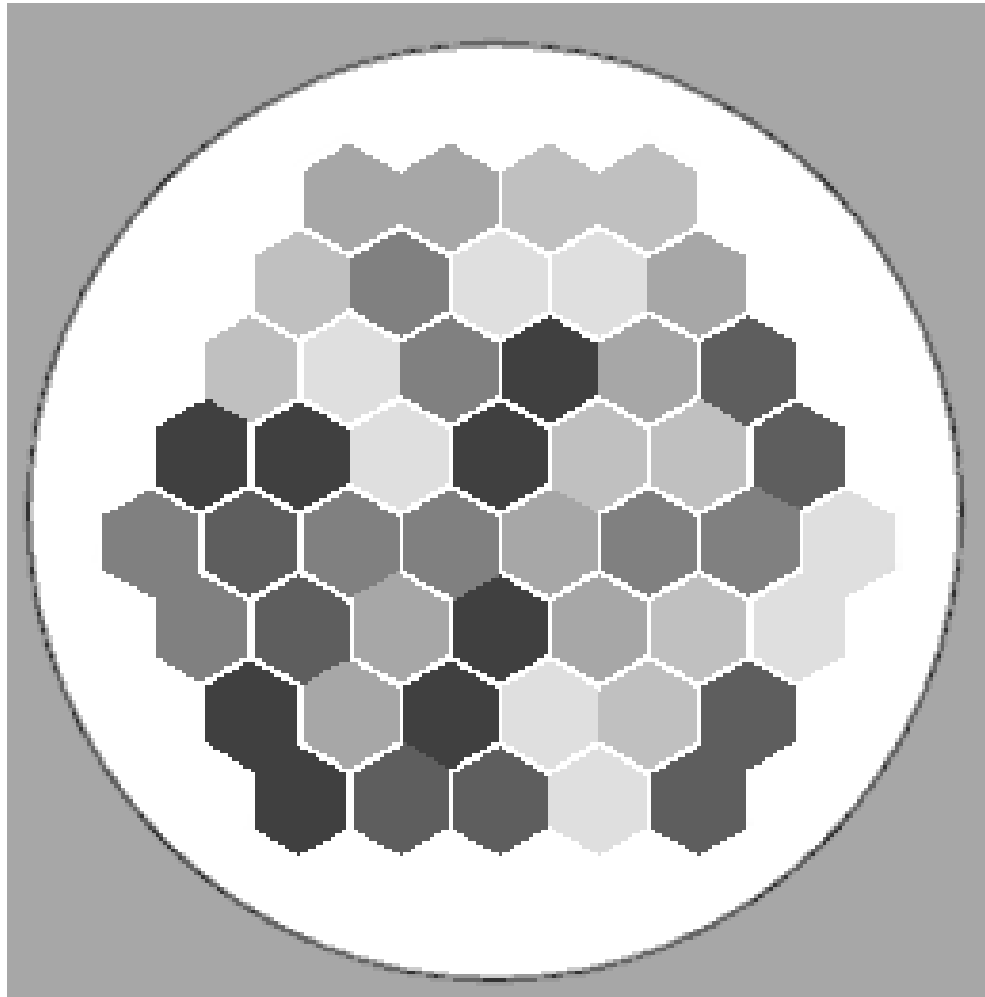
Black's 3 largest patches are 7E, 5D, 5F.

Black's largest connected area is 23.

Black's total is $7+5+5+23 = 40$.

Black wins, 40 to 34.





(Pairs in triangles solution —6 triangles with 3 pairs each)

Hexdominoes[®] *from Kadon*