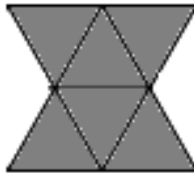


**Ages 12 to adult
1 to 4 players**

The 12 vexatious hexiamonds

IAMOND HEX™



**Duplications
Triplings
Symmetries
Patterns
Games**



*A product of
Kadon Enterprises, Inc.*

Iamond Hex™ is a trademark of Kadon Enterprises, Inc., for its set of the 12 hexiamonds. The 3 colors are uniquely assigned to the pieces to have only one solution with colors grouped and colors separated. Designed by Kate Jones.

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The beautiful Iamond Hex is crafted in lasercut acrylic by

Kadon Enterprises, Inc.

www.gamepuzzles.com

About the Iamond Hex Set

The 12 tiles are all the shapes you can make when you join six same-size equilateral triangles evenly on their edges. We've given them names that match their shapes. Sometimes they've been named for letters of the alphabet. We like these more picturesque names:



Hexagon



Spool



Steps



Airplane



Wave



Boat



Hook



Ladle



Bar



Chevron



Funnel

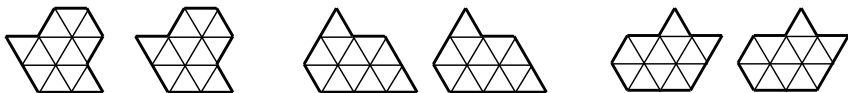


Heart

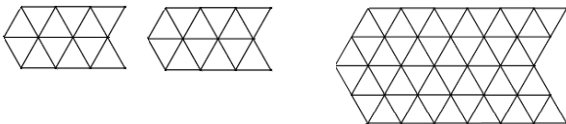
We thank many researchers from around the world for the material in this booklet: Andris Cibulis, Andrew Clarke, Anton Hanegraaf, John Harris, Svetlana Holodnuka, Robin King, Ed Pegg, Jr., Wade Philpott, Maurice J. Povah, and foremost Pieter J. Torbijn, whose meticulously handwritten manuscript from 1976 was a treasure trove of figures and solutions. Zandraa Tumen-Ulzii from Mongolia also contributed many beautiful figures.

Warm-up Figures

Pairs. Use two pieces each to form pairs of identical shapes. There are many such pairs for you to discover. How many can you find? Here are three examples. You can even make these 3 pairs simultaneously, using all 12 hexiamonds:



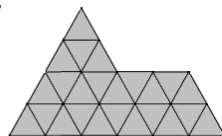
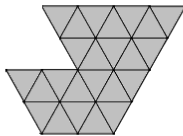
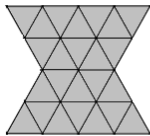
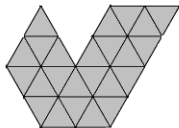
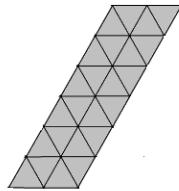
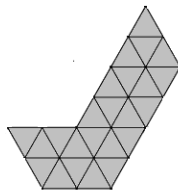
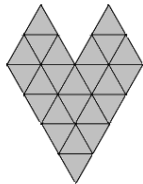
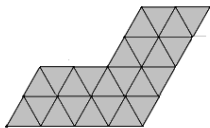
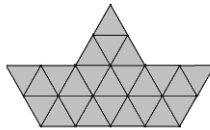
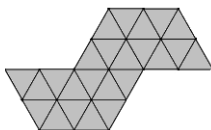
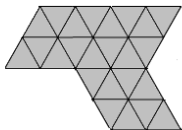
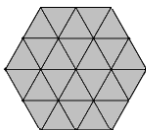
Little and big. Here's a little more advanced challenge. Use two pieces each to form a pair of arrows. Then use 8 pieces to form the arrow in doubled size. You can even make all three figures simultaneously, using all 12 hexiamonds.



Can you find other shapes to make as two small copies and one double-size model?

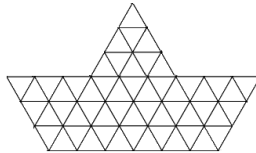
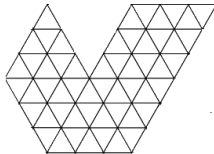
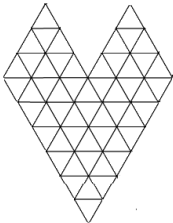
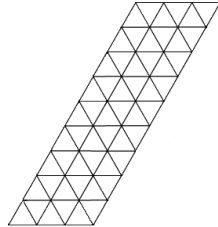
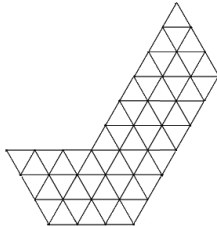
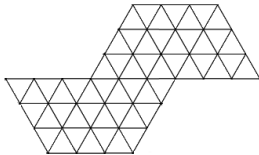
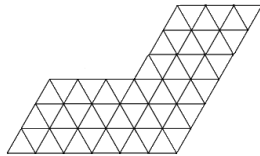
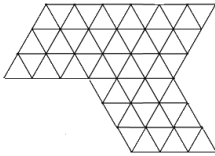
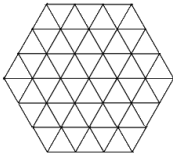
Duplications

Using 4 pieces, make double-size models of each of the hexiamonds.



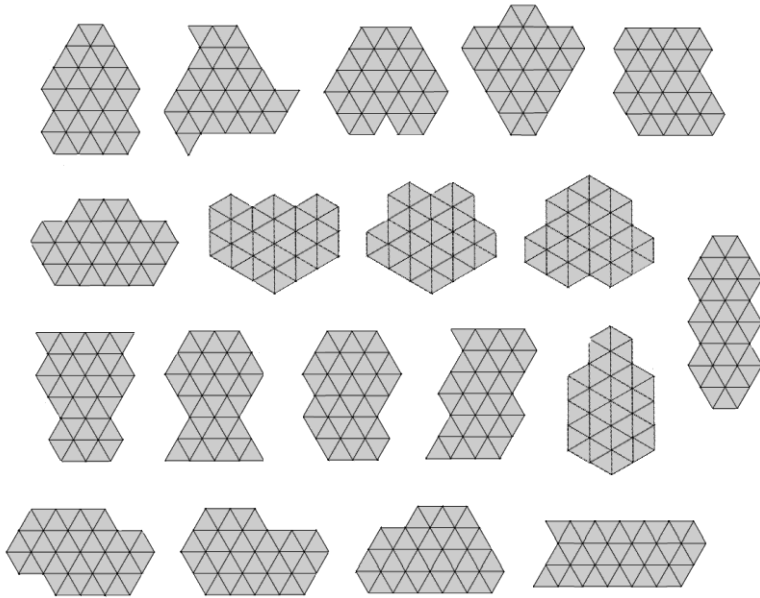
Triplings

Using 9 pieces, form tripled models of the nine hexiamonds shown. The Funnel, Spool and Steps are not possible. For extra challenge, omit the piece being modeled.



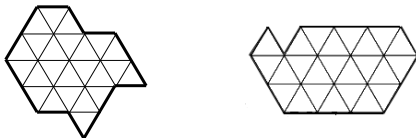
Copycats

There are many ways to make two simultaneous copies of the same shape, using 6 hexiamonds for each. Here is a gallery of beautiful shapes for you to solve. If you find others, send them to us to add to the collection, with credit to you. Make two copies of each figure shown:

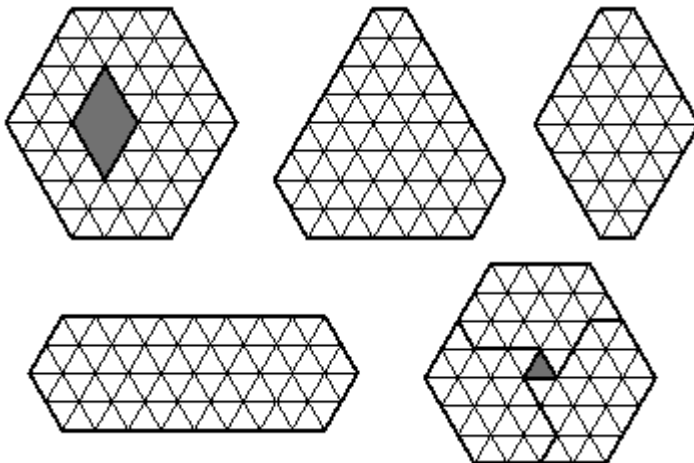


Congruent Triplets

You can make three simultaneous copies of some shapes, using 4 pieces each. Here are just two to get you started. Can you find others?



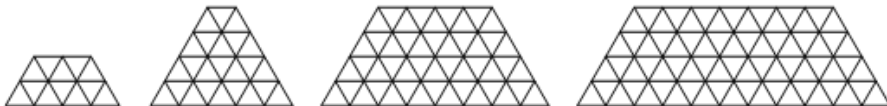
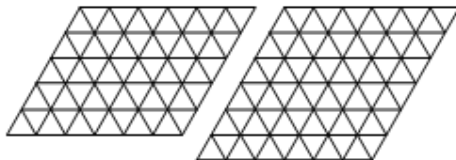
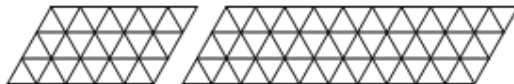
Convex Shapes



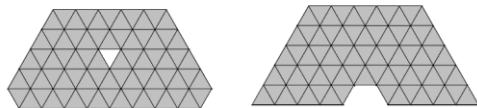
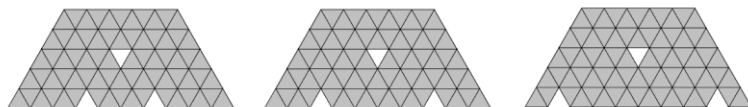
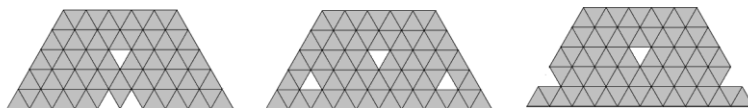
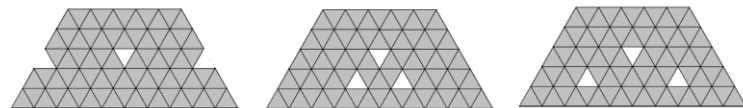
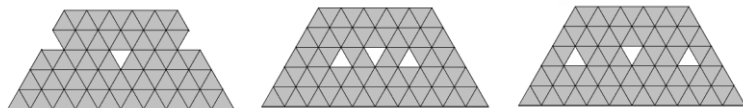
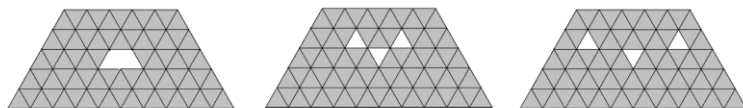
Parallelograms, Trapezoids

Use as many pieces as needed for each figure. The 2×6 parallelogram (not shown) is very easy. The 3×3 and 3×12 are impossible. The only parallelograms using all 12 pieces are the 4×9 (74 solutions) and 6×6 (156 solutions). Can you solve the 6×6 with the Bar totally enclosed?

The four trapezoids shown below are the only sizes solvable.

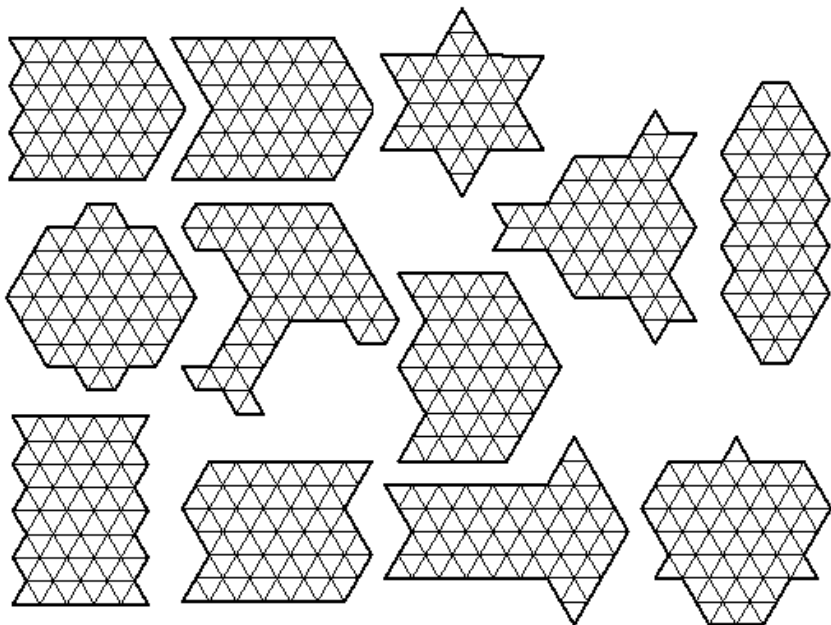


The 5-5-5-10 Trapezoid with 3 Holes

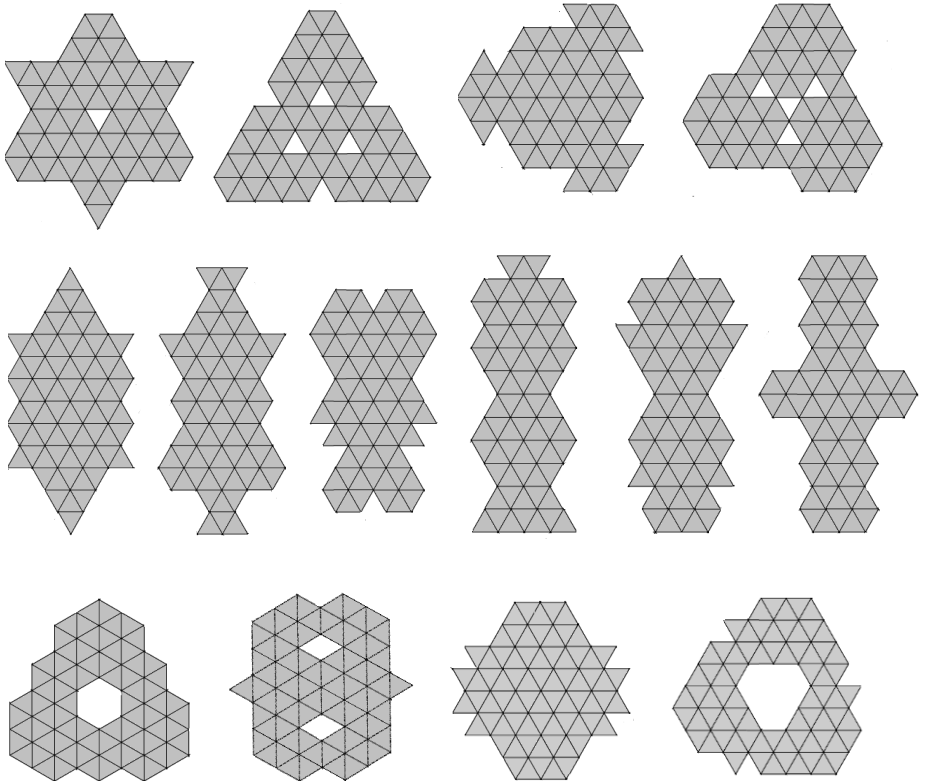


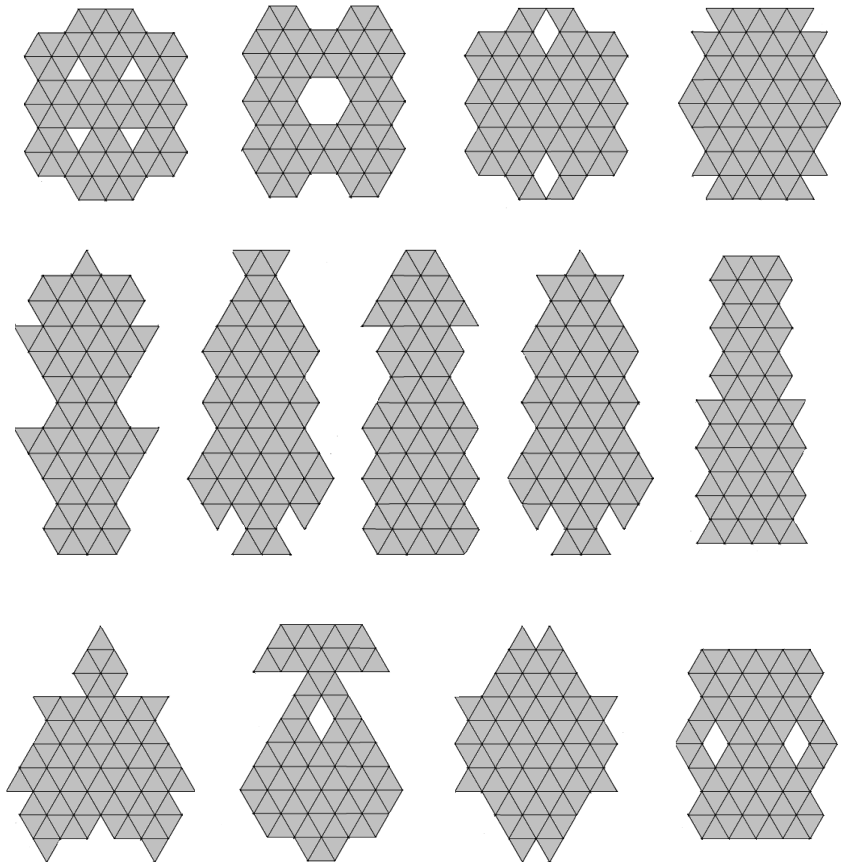
Fancy Symmetries

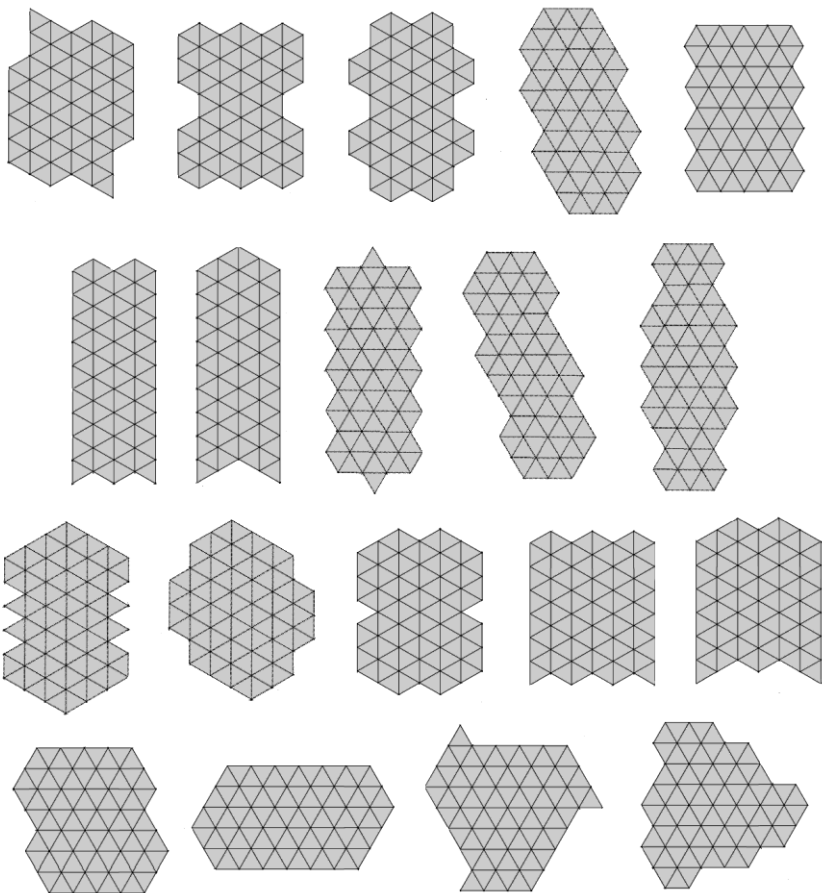
Hundreds of beautiful shapes and figure are possible to build with the 12 hexiamonds. Symmetries are especially pleasing. Solve these, then create figures of your own to solve. You can have many years of happy puzzling. Send us your best results, and we'll publish them in our lamond Hex gallery.

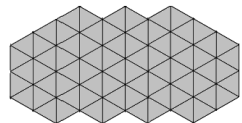
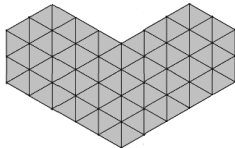
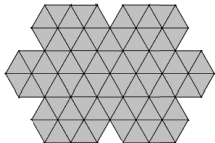
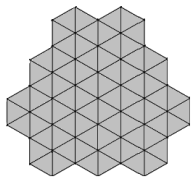
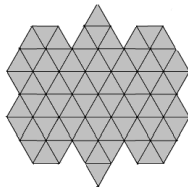
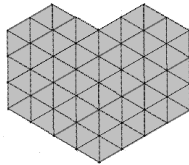
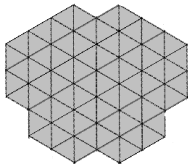
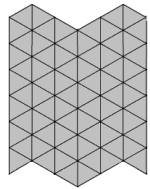
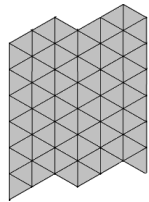
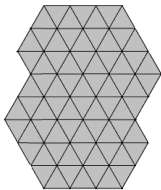
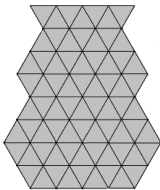
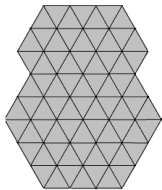
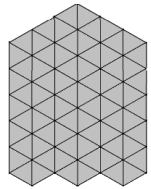
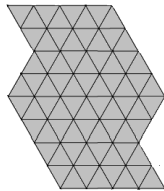
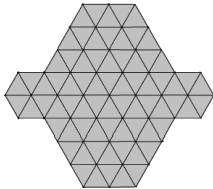
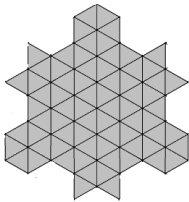


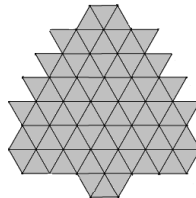
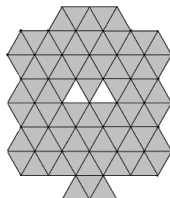
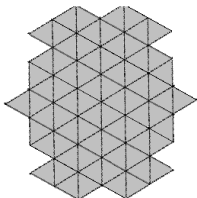
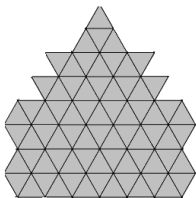
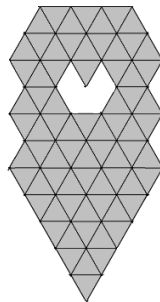
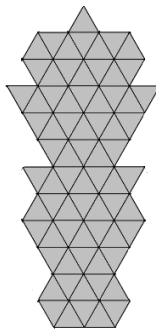
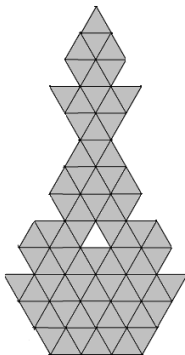
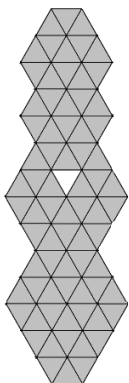
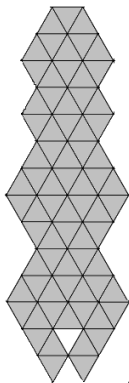
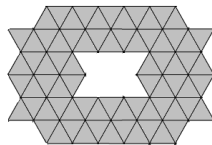
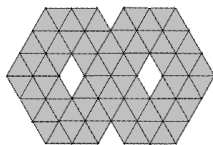
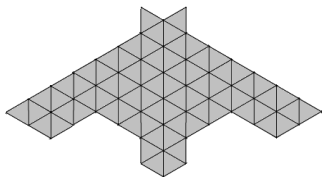
Note: Enclosed white spaces are holes.

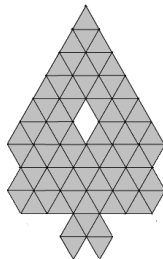
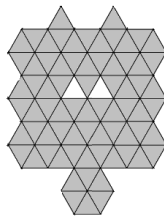
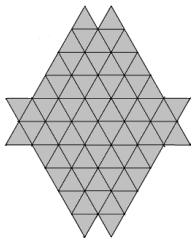
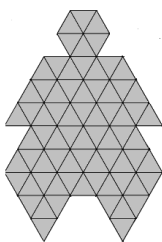
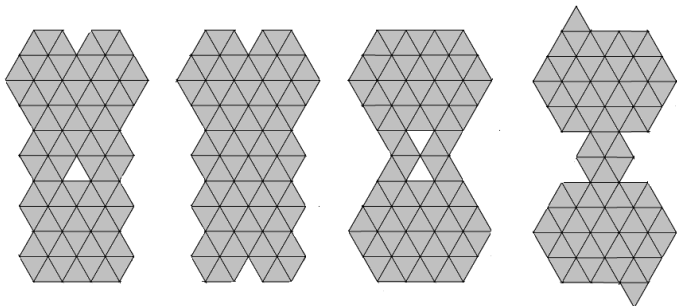






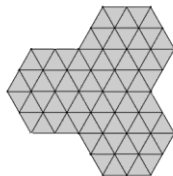
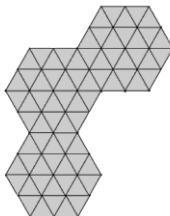
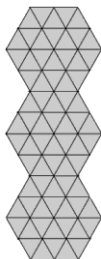




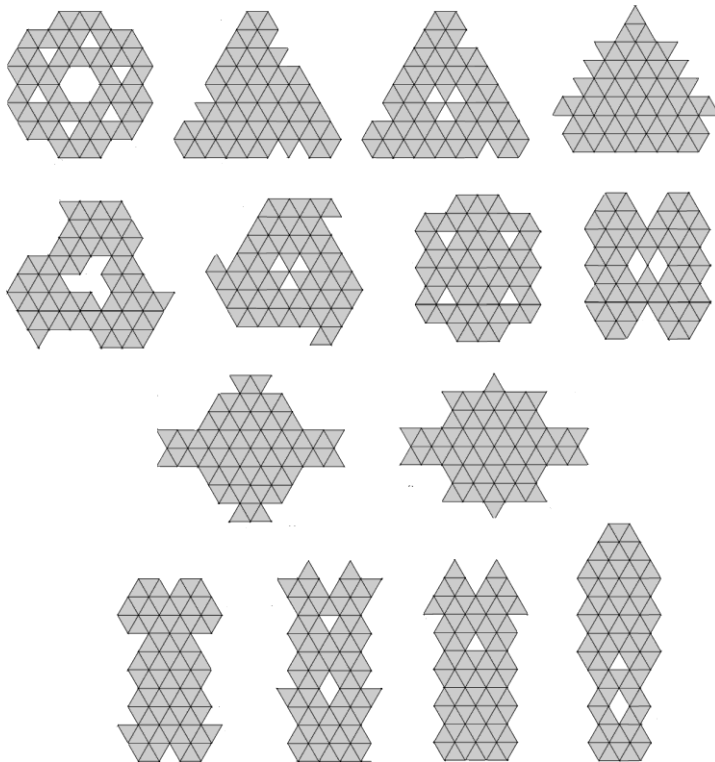


Doubled Trihexes

Three hexagons can be joined in these 3 shapes.
Model each in doubled size with the hexiamonds.



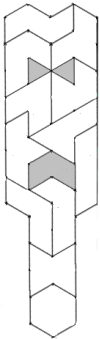
Figures with Unique Solutions



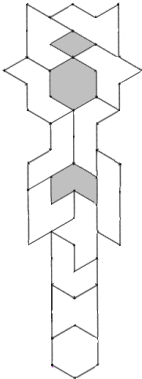
Tallest Towers

How far can you stretch a symmetrical arrangement of the 12 hexiamonds? Here are a few tall ones. The first two measure along the sides of their triangles. The third and fourth go by the altitude or height of their triangles. See the orientation of the embedded holes. Can you beat these? If you find longer ones, send us your solutions and you may win a prize. Email to: kadon@gamepuzzles.com. What is the maximum?

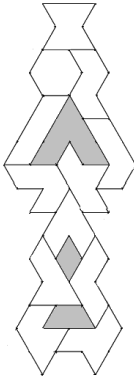
Holes are allowed, but pieces must have at least one full edge contact.



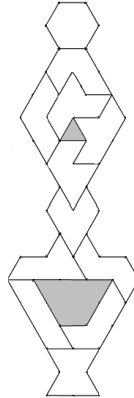
12.5 "sides"



14 "sides"



16 "heights"



17 "heights"

Thanks to George Sicherman, whose tall towers with tetrahexes inspired this lamond Hex towers project.

Iamond Vex

A quick strategy game for 2 players

Start: The tray empty between the players, all tiles loosely spread around for both players to choose from.

Play: Take turns choosing a tile and placing it into the tray, either side up and touching the border by at least one unit edge. After this first tile, always place next to another tile and touching by at least one edge. Same-color tiles may touch only at corners.

Goal: To be the last one able to play.

Edgy

A very quick connection game for 3 players

Start: Divide the pieces by color, four to each player.

Play: Take turns placing tiles into the tray, starting against the border. Thereafter, each player's piece must connect to one of their own color by at least one edge. A player without a move must pass.

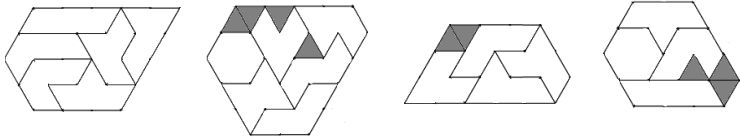
Goal: To connect the most pieces and touch the most edges of the tray. Each piece placed scores 10 points plus 1 point per tray edge. The tray has 18 edges.

Convexity

A shape-forming strategy game for 2 to 4 players

Start: Players choose one piece at a time to divide the 12 hexiamonds equally between 2 players (6 pieces each); 3 players (4 pieces each); or 4 players (3 pieces each).

Play: Players try to fit their pieces together in the most convex shape possible (a shape with no indents). Zero is perfect. Twelve is the default highest value. Scoring is based on the number of unit triangles needed to pad out the shape to make it convex. As players obtain a shape, they announce it. Play continues until all players have finished, or set a timer for an agreed-upon number of minutes. Sample scores, left to right: 0, 4, 2, 3, showing the number of triangles added to fill the shape.



Goal: Each player wants the lowest score possible. After scoring everyone (the maximum score for one play is 12), divide the pieces again. When one player reaches 60 points, the player with the lowest score wins.

iamond Touch

Point-scoring strategy game for 2 to 4 players

Start: Choose tiles until each player has a hand of 6 (for 2 players); 4 (for 3 players); or 3 (for four players). The tray is not used.

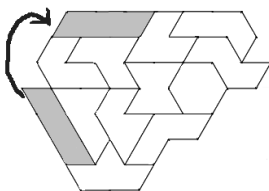
Play: Take turns placing one of your tiles on the playing surface, always adjacent to another tile (except for the first move). Score 1 point for each unit edge contacted. The first move gets the same points as the second move, since it had nothing to touch. Colors don't matter. A piece can touch anything. Here are a few sample moves:



Move 1 had no piece to score against and Move 2 touched 3 unit edges. Player 1 and 2 both receive 3 points. Move 3 scores 3, Move 4 scores 2, and Move 5 gets 3 points.

When all players' pieces have been joined in the central array, take turns relocating pieces, again scoring one point for every unit edge of contact. *Limits:*

- 1) Only a piece with at least one unit edge exposed at the outer perimeter of the array may be moved.
- 2) No piece may be moved that would disconnect another piece or leave it hanging by a corner.
- 3) No piece may be returned to its exact previous position.



Sample move: Repositioning the shaded piece to the new edge scores 4 points.

Take as many rounds of turns for the transformations as you did for the placement stage of the game. At their conclusion, remove pieces one by one, scoring one point for every unit edge *separated*. During this carrying-off stage, only pieces with an outer edge exposed may be taken, and no piece may be left disconnected from the array. The pieces you take become your “hand” for the next game. Play as many rounds as there are players, so everyone has a chance to play first.

Goal: To gain the highest total score at the end of the game.

*All colors
separated
in the tray*



IAMOND HEX™ *by Kadon*

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