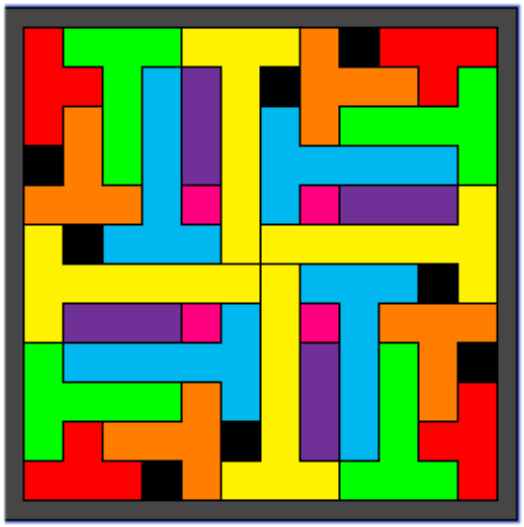
For 1 to 4 players
Ages 6 to adult

Robert's T Party™

Tiling fun with quartets of T's



A short imaginary tale
Puzzle combinations
One-goal challenges
Game strategies

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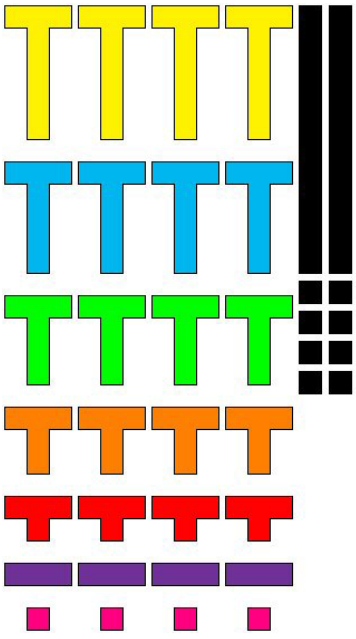
Table of Contents



The colorful acrylic tiles of **Robert's T Party** are lasercut and hand-finished by Kadon Enterprises, Inc.—Pasadena, MD 21122
www.gamepuzzles.com

A SHORT IMAGINARY TALE

"I'm not sure what we're having for dinner," a T3 said as his wife, also a T3, looked in the cabinets that lined the wall of the kitchen in their 3-story Tudor. "I guess we can wing it."

"We've certainly got enough in here to wing it with," she replied, still studying the cabinet's apparently endless contents from countless trips to the grocery store.

"Any ideas where to start?" he asked as he searched his own brain for inspiration.

"Not a clue," she replied, fresh out of inventiveness.

"Uh-oh. I'll get it," he said as the phone in the study started its somewhat quiet yet insistent ringing. "Hello, this is a T3 residence. Yes, yeah, I… well, lemme see," he said, respectfully covering the mouth end of the phone's handset as he prepared to shout into the kitchen. Telling her what was up, he saw that they were of the same mind and that they'd be able to make it, something he told the caller before he hung up and went back to the business at hand.

Two states and an inch and a half away a letter arrived to an isolated T, a T4 who never had children and didn't feel bad about it. Lacking a phone, and not feeling bad about that, either, the T4 read the short invitation and decided it wouldn't be a problem to attend.

Things went on that way for the rest of those who were being so cordially invited, out of the countless numbers of other letters living alongside them on their small but extraordinary planet—four T5s, T4s, T3s, T2s, T1s, T0s, and Points—such that by the time they all arrived at the hotel, they realized that it would be quite difficult, some thought impossible, to fit them all into the ballroom where the festivities for their reunion would take place.

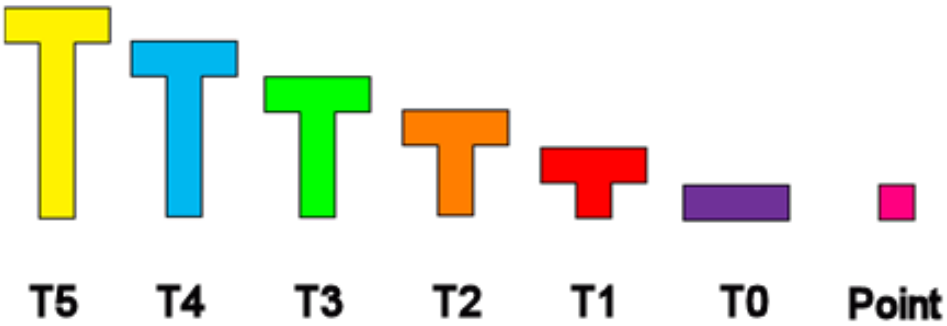
However, there were some, including the D's, the F, the two J's, the Q, and the X that worked there, who thought that fitting all 28 T's and Points into the ballroom was possible if they just looked at it the right way.

"I learned from a company called Kadon that you need to put the large ones in first," said the only X ever to be employed by the hotel. "So just send in the four T5s and let them get settled. Then dispatch the T4s, and so forth down to the Points. You can do it," declared X encouragingly.

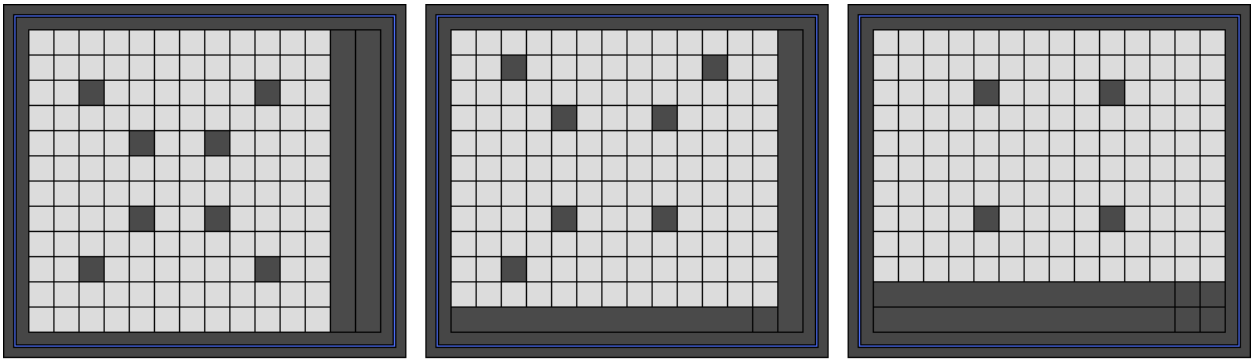
And, sure enough, after working their way down the sizes of T's and the Points, everything and everyone fit and they could begin their celebration.

INTRODUCTION

The set you hold is a series of T's with their vertical positions of different lengths: **4 each** of **T5**, **T4**, **T3**, **T2**, **T1**, **T0**, and the single square called **Point**.



The set occupies an adaptable tray, with two bars of length 12x1 that allow an inner space of three different grid sizes to be framed—**12x12**, **11x13**, or **10x14**—by arranging the two bars and eight "fillers" as needed. Some activities may leave empty spaces. The floor of the tray has engraved grid lines.



Once your grid is made, you will pack into it the entire set of **28 pieces** (comprising **136 unit squares**) with various conditions posed to increase its challenging nature.

1. Put the **major** T's (from **T5**s through **T1**s) together so that **all four members of each T type** form **one zone** of their own color. It doesn't matter how the **T0**s or the Points are placed.

2. Keep T's of the **same color *apart***, even at their corners. See back cover.

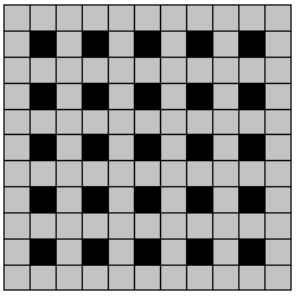
3. Feature as many **axes of symmetry** as possible when you work to fill the frame.

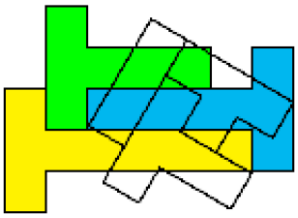
4. Do both challenges **2 and 3** in the same solution.

5. Can you solve challenges ***1* and 3** simultaneously?

PUZZLES

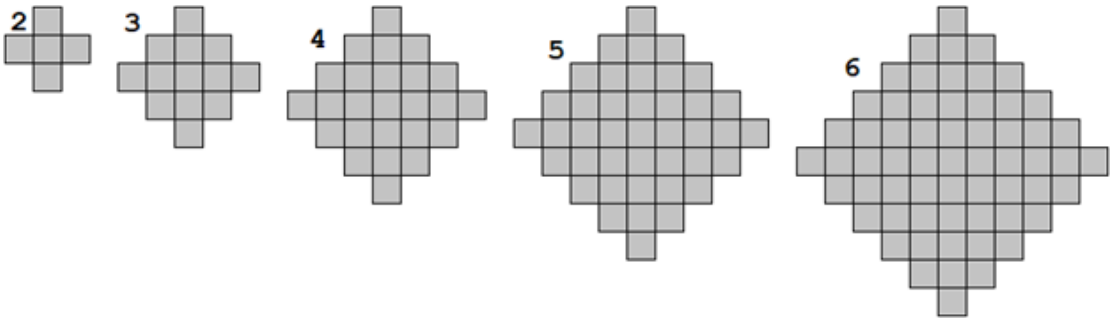
1. **Here's the hardest challenge first:**
This grid can be filled in with the T Party set except for a single cell. The black squares shown are open spaces. Cover only the lattice. See how far you can get and which one gray cell will remain uncovered, or covered with a filler piece. Send us your results. New solutions will win a small prize. The first solution was found by George Sicherman. Email your answer to: kadon@gamepuzzles.com



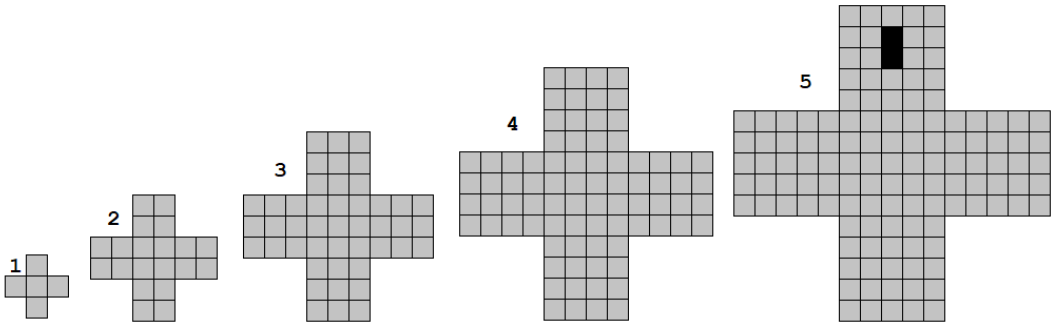


2. **Mutual contact:**
Arrangements in which each of the six T's touches each of the other five T's by at least one edge and the areas enclosed are of various shapes and sizes. Stacking of pieces is allowed.

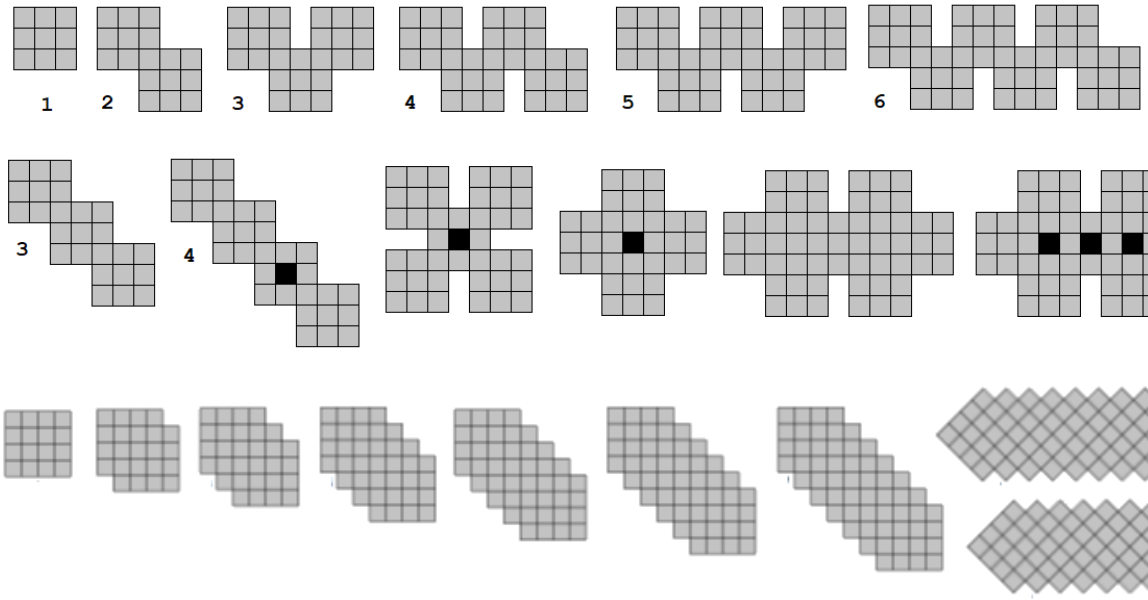
3. **Crenellated squares:**
Various squares (diamonds) that look like someone took pinking shears to them.



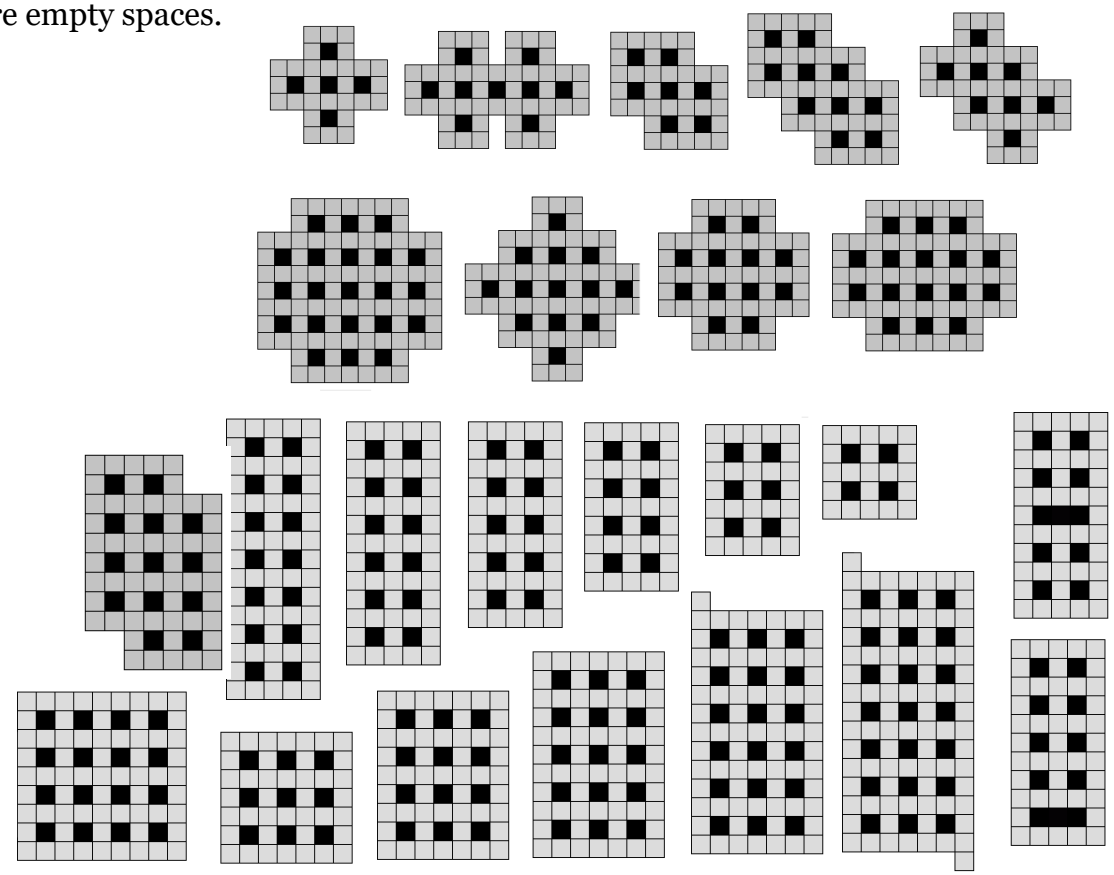
4. **Crosses:**
Four-armed crosses of various sizes, equivalent to five squares joined. Also known as the pentomino X. Can you solve size 5 with only a singleton hole? With no hole?



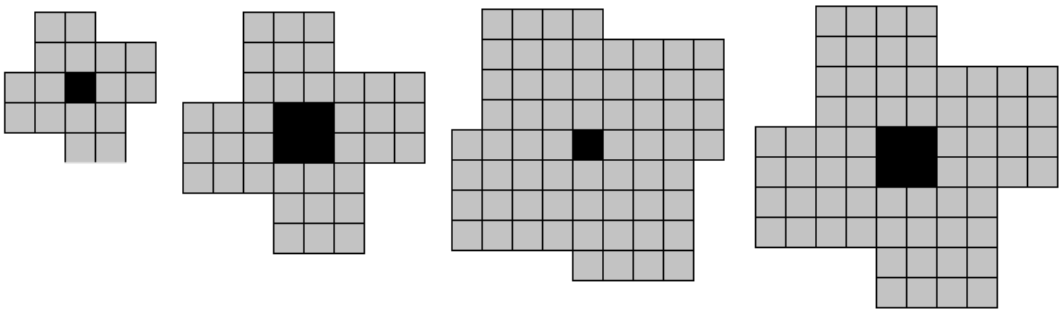
5. **"Daisy Chains":** 3x3 squares branching off each other's corners (first two rows); 4x4 squares connected in 1 to 9 links (last row).



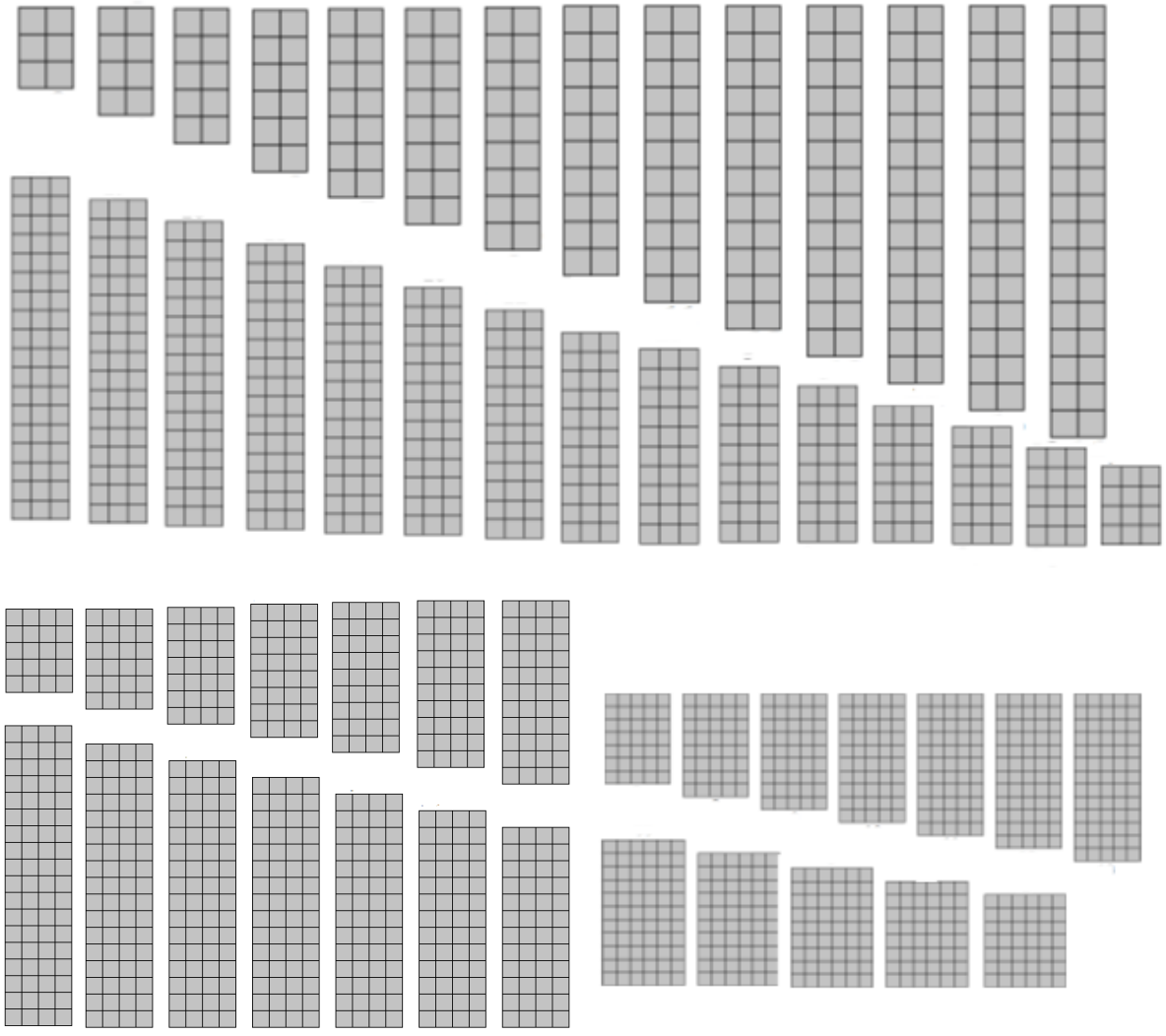
6. **Lattices:** Improbable shapes *can* be made from the pieces of T Party. Black squares are empty spaces.



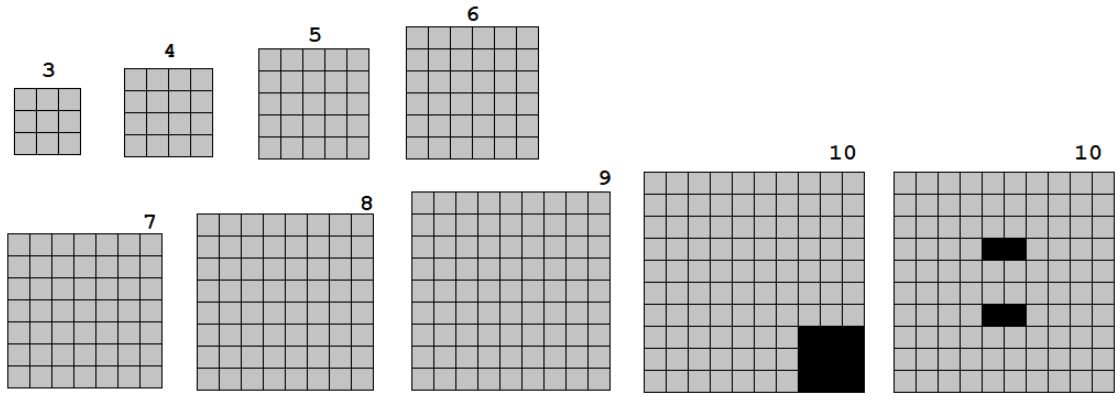
7. **Pinwheels:** A handful of 4-way challenges. Black squares are empty spaces.



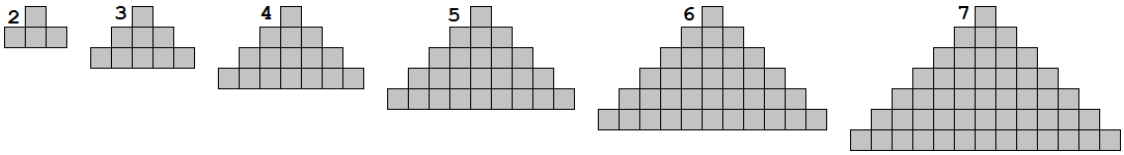
8. **Regular shapes:** Rectangles (widths 2 through 6), have lengths of 3 to 18.



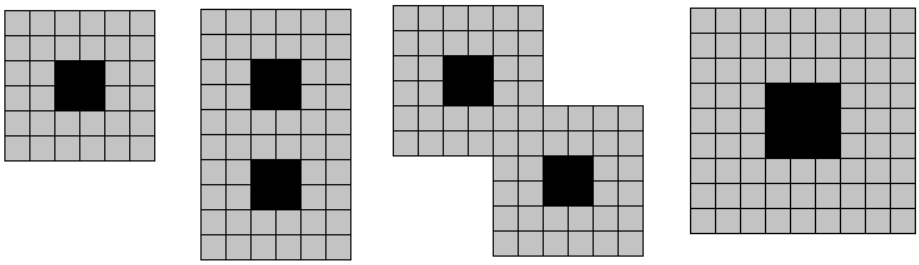
9. **Regular shapes:** Squares (side lengths of 2 through 9, and two special 10s).



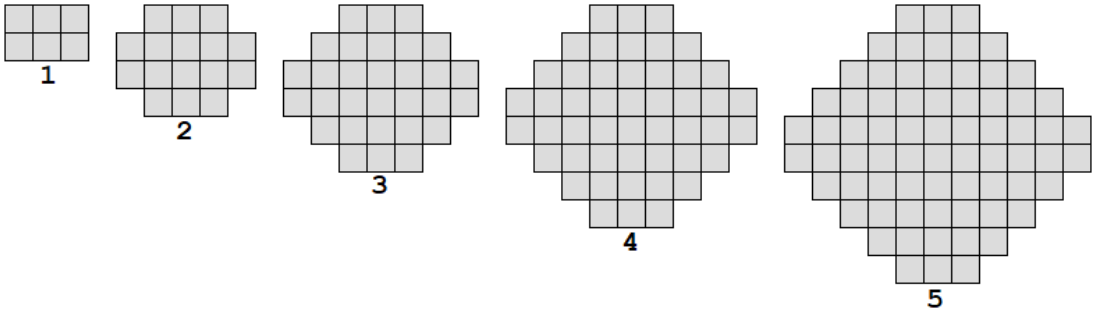
10. **Triangles:** A short series, like the Lattices, can be solved up to 7 levels, though it might not look like it at first.



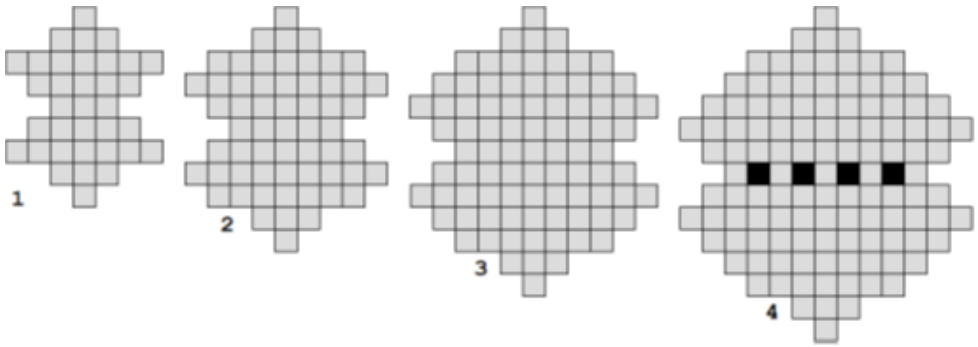
11. **Square rings:** Another fun series with surprising results.



12. **UFOs I:** They are wider than high, like spinning tops.

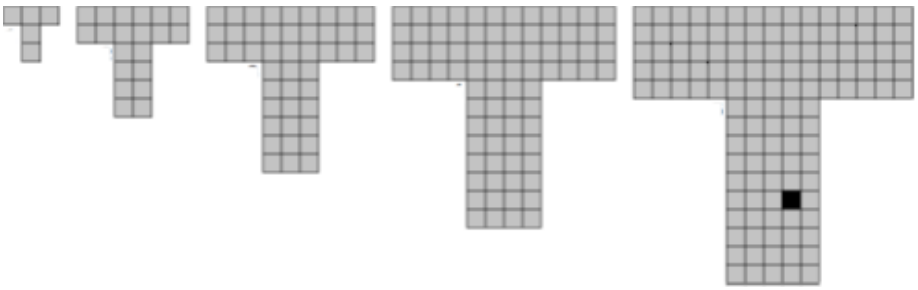


13. **UFOs II:** Double-decker space stations are built in ascending sizes.

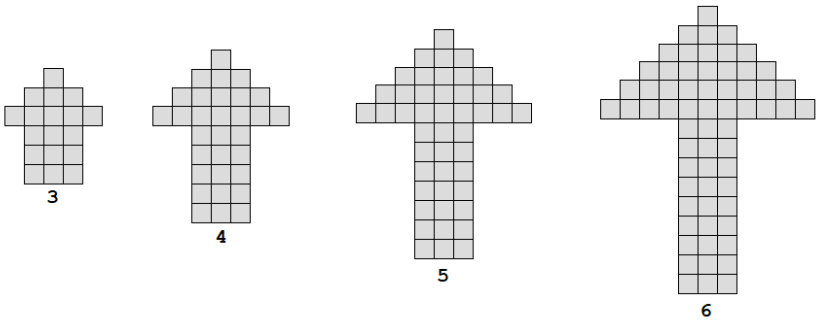


14. **Staircases:** Like several series here, this one went farther than expected. The stairs are from 4 to 5, 6, and 7 units wide and from 1 to 9 steps up.

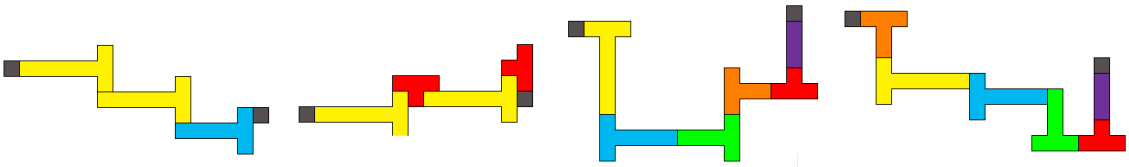
15. **T-Series:** Using as many pieces as needed, build a growing series of pentomino T's. Our best solution for the largest one contains one space. If you solve it differently, send us your solution: kadon@gamepuzzles.com?subject=T-series



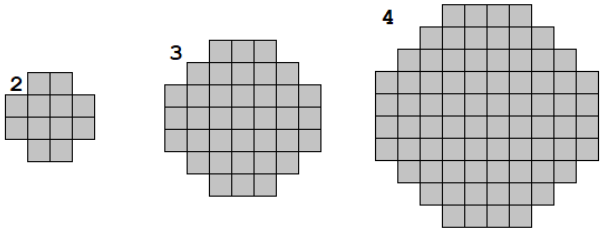
16. **Umbrellas:** In these interesting structures the "roof" grows one level at a time while the "handle" grows by two. Perhaps they're mushrooms?



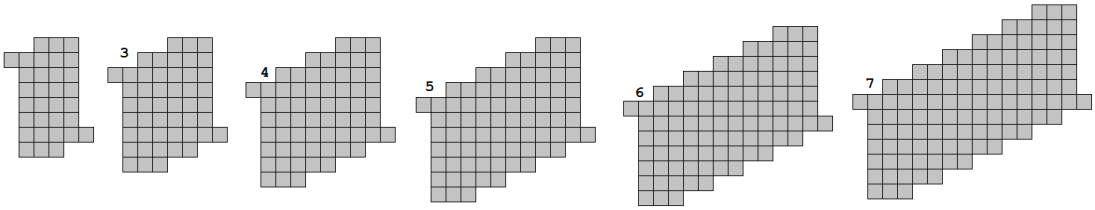
17. **Pathfinder:** Set up two Point pieces some distance apart, as in the samples below; then build a path between them. Aim to use one set of the 6 all-different T's. What's the longest you can build with these 6 pieces?



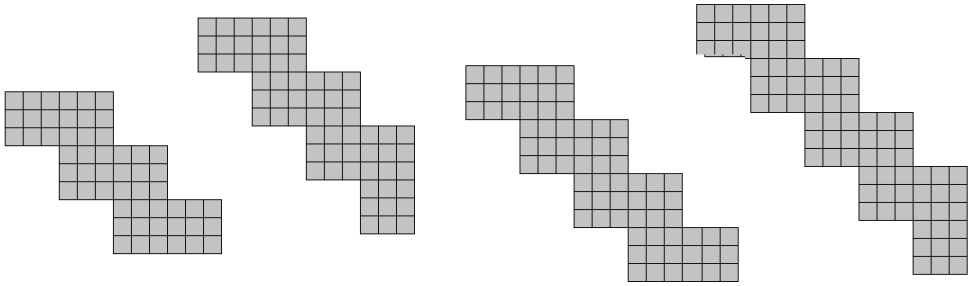
18. **Octagons:** Fancy in-and-out outlines, in ascending sizes. Beachball?



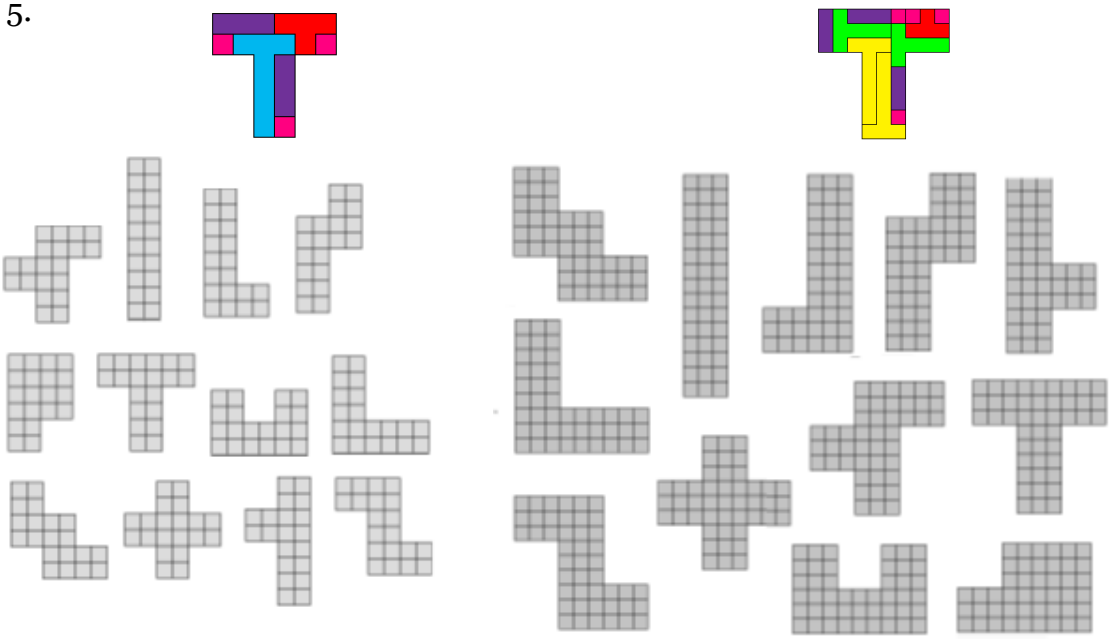
19. **Ladders:** All are 8 units tall and stretch from 2 to 7 sections, looking 3D.



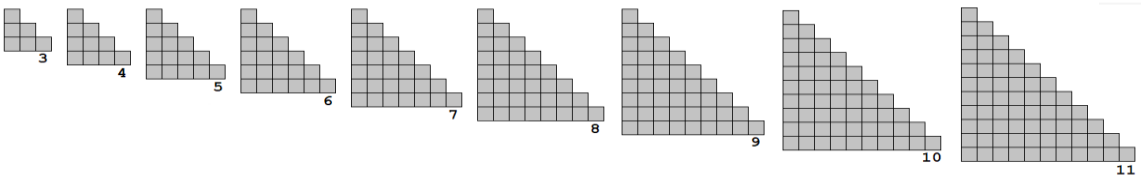
20. **ZigZags:** 3x3 sections snake their way forward, containing from 6 to 9 chunks.



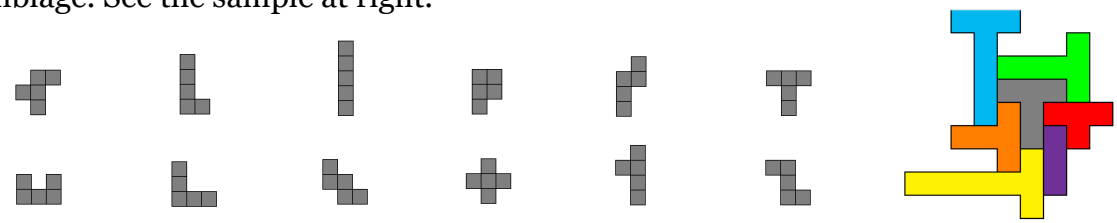
21. **Pentominoes:** Doubled and tripled—they're the tribe mates of **T2.** Each piece has a letter name: FLIPNTUVWXYZ. See sample solutions. Then try each with size 4 and 5.



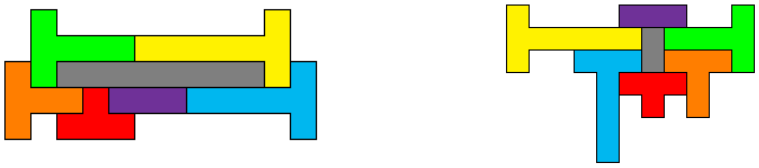
22. **Corners:** Build them with 3 to 11 lengths of sides.



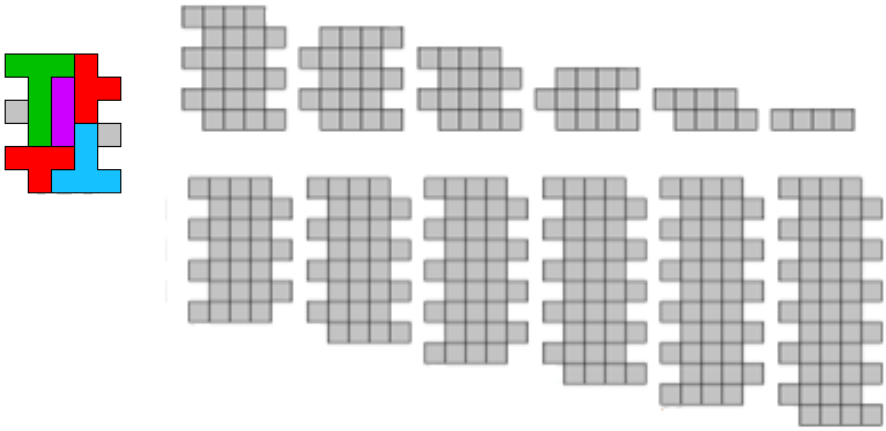
23. **“Wrapped Attention”:** Form any pentomino with filler pieces as a core, then surround it with one each of the 6 T’s touching it and with no space left in the assemblage. See the sample at right.



24. **“Family Wrap”:** Choose any one member of the T Party set, even a pair of fillers, to be the core, then surround it with one each of the 6 T’s and no holes. See samples below. At least one edge of each piece must touch the core.



25. **Zippers:** An unusual series built with any combination of T Party parts can form shapes 4 units wide and 1 to 12 levels high. Can you build a larger size?



ONE-GOAL CHALLENGES

1. **Largest interior space:** Use a set of 6 T’s to enclose the largest possible area.

2. **Longest path:** Make a path such that the points at each end are as far apart as possible.

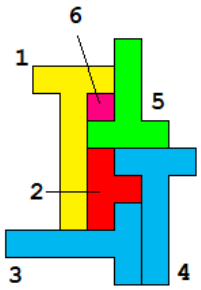
3. **Gridlock:** Find the fewest number of pieces you can put into the frame such that they don’t move if you shake it.

GAMES

Each player uses one set of **T0** to **T5** plus a Point, as needed.
More sets can be used, as desired. Pieces may not overlap.

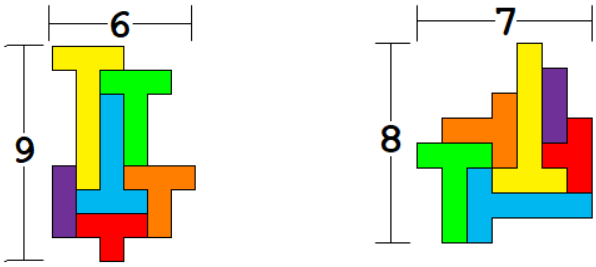
1. **Points of Contact:** Outside of the tray, players take turns placing one of their pieces in contact with the sides of as many as possible of the pieces already played (touching corners only doesn't count). Score points for each piece your move brings together, including the one being added:

1 piece	1 point
2 pieces	4 points
3 pieces	9 points
4 pieces	16 points
5 pieces	25 points

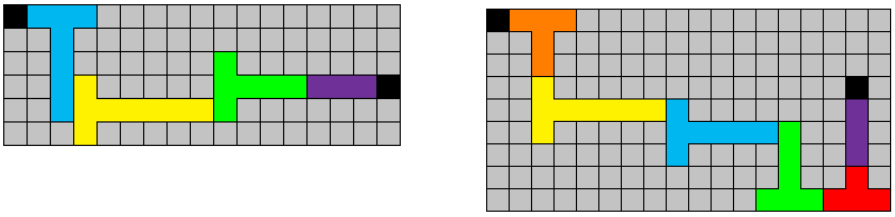


See sample scores in the image above right: 1, 4, 9, 9, 16, 9 by sequence of placement.

2. **Mimicry:** Each player has a set of the 6 T's. One player gets to choose which piece to use on each turn, and all players use matching pieces at the same time—for example, **T3** first, then **T5**, then **T2**, etc.—to see who can create the most compact arrangement, counting the height and width of the rectangle into which their assembly could fit. Samples, left to right, are 9x6 and 8x7. Left wins, 54 to 56.

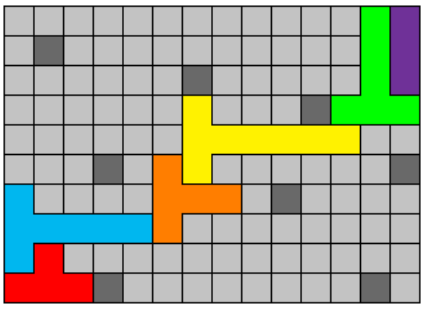


3. **Pathfinder:** Use the Pathfinder puzzles (page 10) as the basis for a race to completion. Use 2 fillers to mark a start and end position; using your 6 T pieces, build a connecting path. The player with the shortest path that achieves the objective wins. Does your shortest path use the fewest number of your pieces? What is your shortest path if you include all six of your pieces? (Count the length of your path by the number of squares over which it travels.)

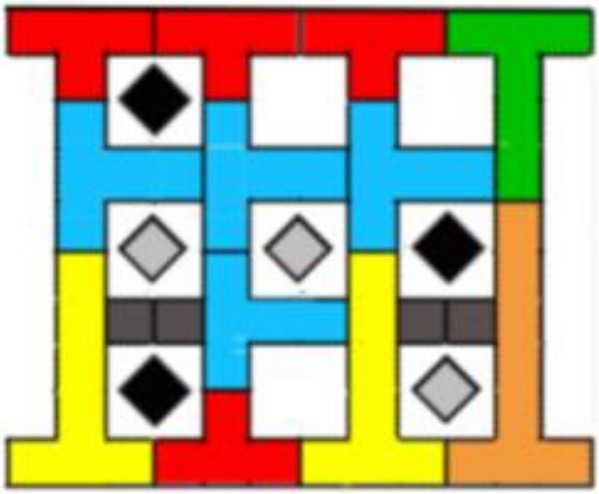


4. **River Crossing:** Place the 8 single fillers randomly on squares in the 10x14 tray as obstacles for the other player to avoid on the way to the other side of the tray. If you want a harder challenge, add the four single Points from the main set, too. The "traveler" will now place the six T's in any order, starting with a piece on one side of the tray and connecting the rest of their pieces to form a continuous line to reach the opposite side. Pieces need to connect by at least one edge; corners alone do not count. Aim for the crossing to connect opposite corners as well.

   The player scores points for the number of pieces the crossing required. Count only the number of squares that are part of the connecting line; squares hanging out on the sides that are not part of the supporting passage are not counted. Take turns setting up the obstacles for the other player. The player with the lowest score wins. The sample here scores 23 points. You can do better.



5. **Tic-Tac-Toe:** Build a board with the given pieces and play an advanced game of TTT. As playing pieces, each player gets 3 single squares: three Points and three fillers. Take turns placing your pieces like diamonds on the spaces of the "board". Once all are placed, on your turn reposition one of your pieces in an open space. Try to get a double possibility while blocking the other player from doing so. It takes some caution what to move, as both players are blocking more than one of the other player's pieces. P.S.: Can you find a different way to build the board?

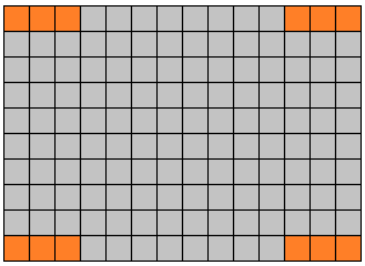


6. **Largest Ring:** Two players collaborate using the entire set to create as big a ring as they can.

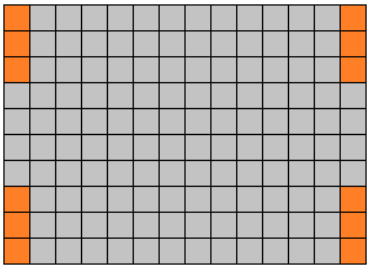
ADDITIONAL CHALLENGES

Find at least one solution for each challenge. The references next to each entry are the board sizes found to be successful; the other board sizes stand as open challenges. Send us any solutions you find! Email to: kadon@gamepuzzles.com.

1. Have the 1×3 bars horizontal and in every corner (10×14).



2. Same goal as Challenge 1, except with vertical placement (10×14).



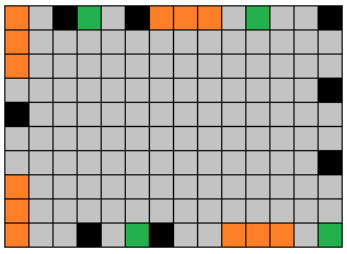
3. Group the T's by type, keeping like colors together. Let the bars and Points be anywhere for now, not necessarily together (12×12).

4. Group all 7 colors simultaneously (whole tray, 12×14).

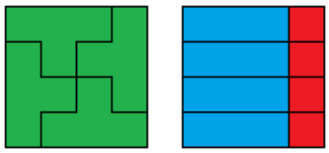
5. Keep all pieces of the same color separated, pieces not touching, not even at their corners (12×12).

6. Join all the T's in matching pairs by color and use the pairs to fill the grid. The pairs themselves may touch each other, producing one region of a given color. Four black filler squares are not used (10×14).

7. Place all "Unit" tiles (non-T's)—the 1×3 bars, the "Points", and the singleton fillers—against the edge of the tray. Image at right is only a sample, not necessarily a solution. Such a start will keep the interior "solid" because its whole area comes only from the five T types (10×14, 11×13).



8. Find a solution incorporating an independent 4×4 square with defined edges (12×12). Images here are only samples, not necessarily solutions.

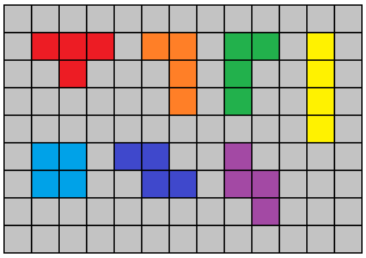


9. Using six fillers to construct two 1×3 rectangles, fit these as the fifth and sixth "bars" in with the other four and the rest of the set in your choice of grid size. Bonus points for having rotational symmetry (12×12).

10. Keep all fillers in a given grid size (4 in 10×14, 7 in 11×13, and 8 in 12×12) isolated from each other.

11. Pair up the 8 fillers into 4 dominoes and solve as if they were solid pieces (10×14).

12. Arrange the four Points together into any of the 7 tetrominoes (shapes made of four squares, shown below), counting reflections as different, and feature each shape at least once in a given solution (12×12).

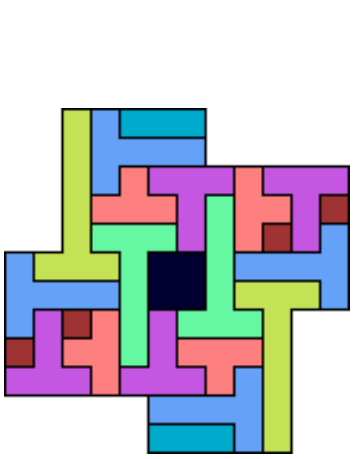


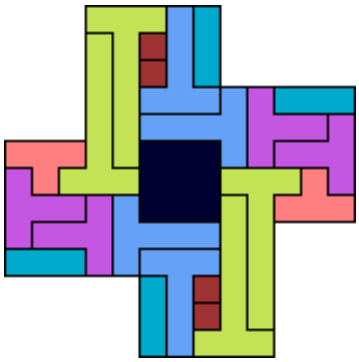
13. Arrange three 1x3 pieces along one edge of the tray so they don't touch each other. For further challenges, add one Point at a time to form ever-lengthening strips: 1×10, 1×11, and, if possible, all four strips joined as a 1×12 bar (12×12).

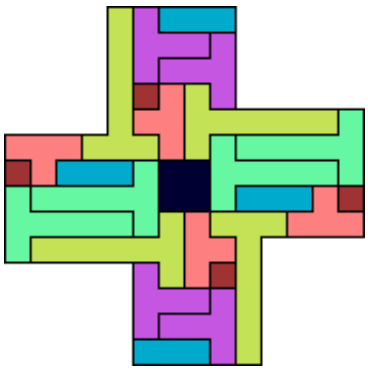
14. Find solutions with two-way rotational symmetry (all board sizes) and *four-way rotational symmetry* (12×12).

HOW MATH BECOMES ART

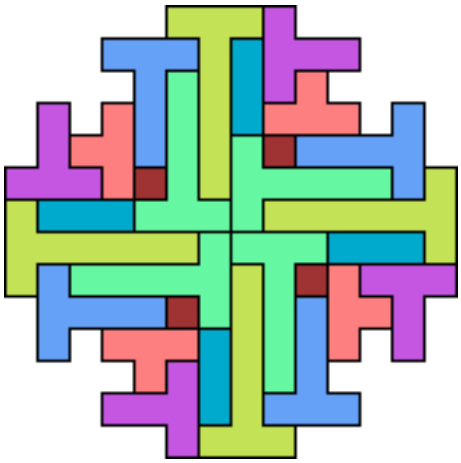
Solutions by Robert Vermillion and George Sicherman

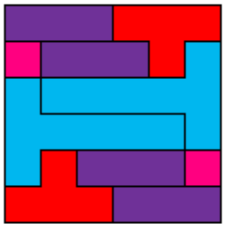


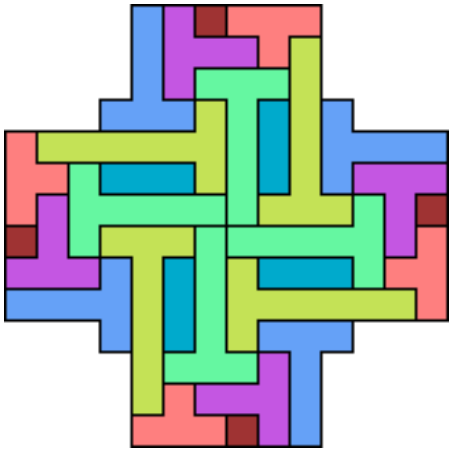


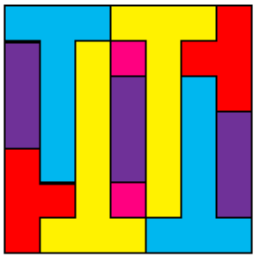


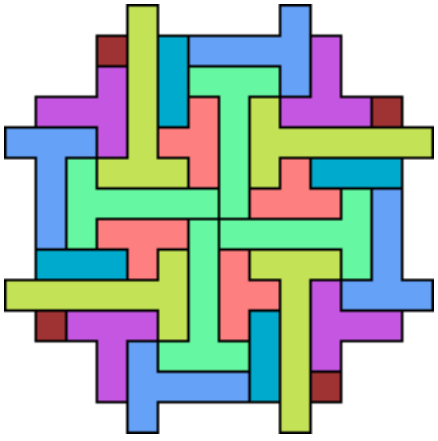
- **Symmetries**
- **Pairings**
- **Separations**
- **Groupings**
- **Rotations**

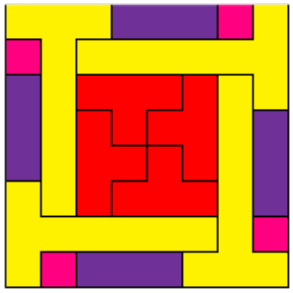


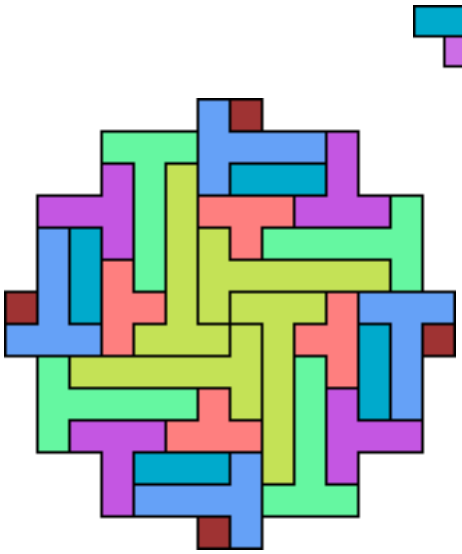


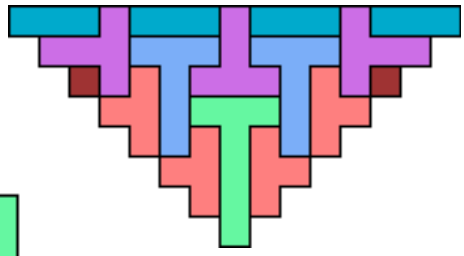


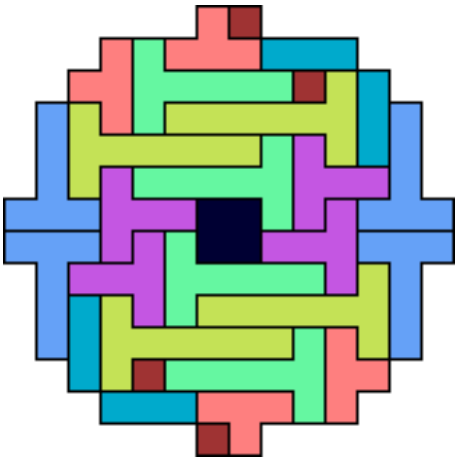


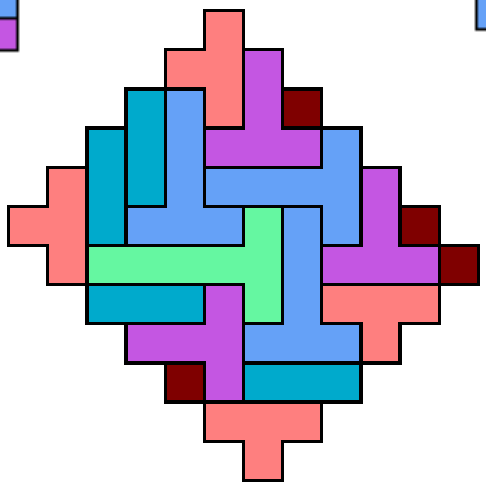


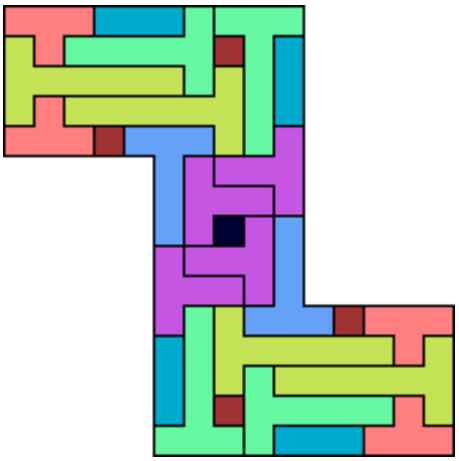


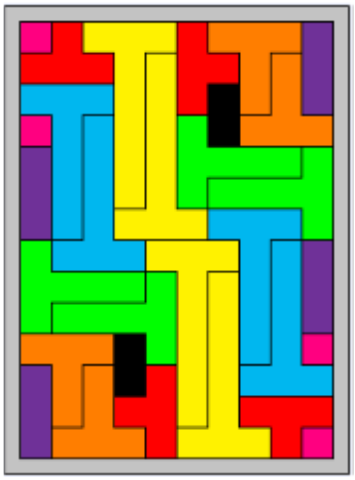


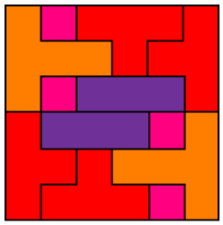


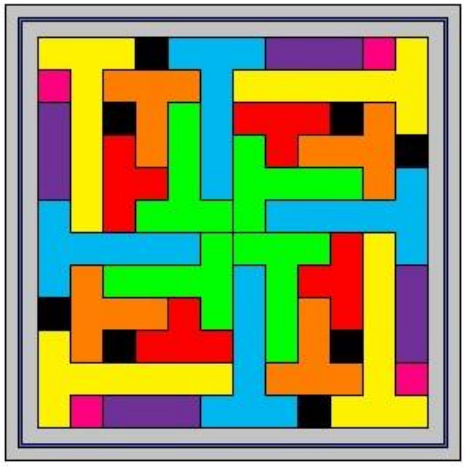


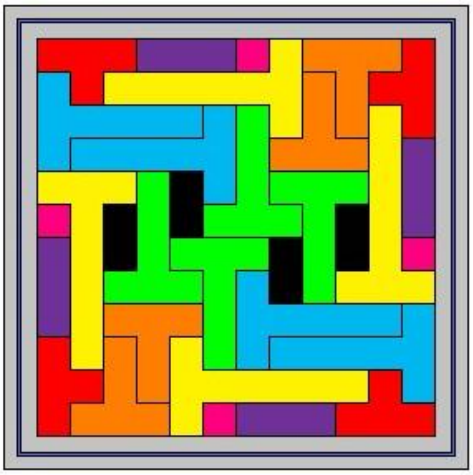


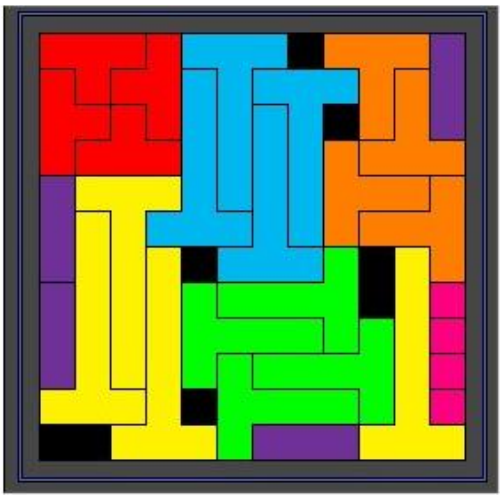


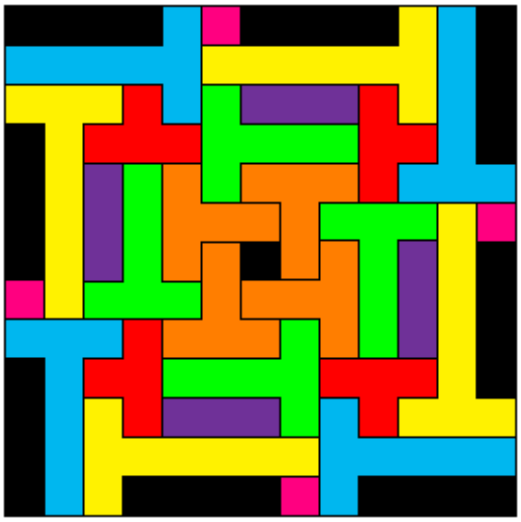


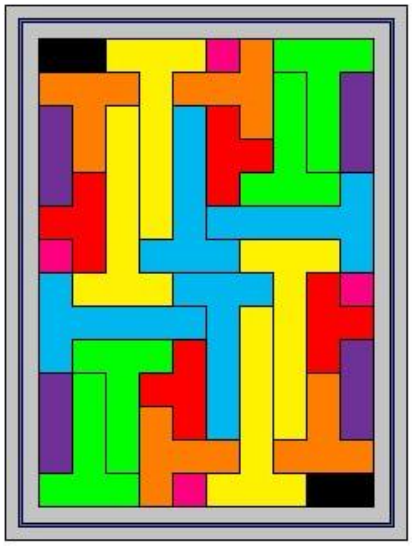


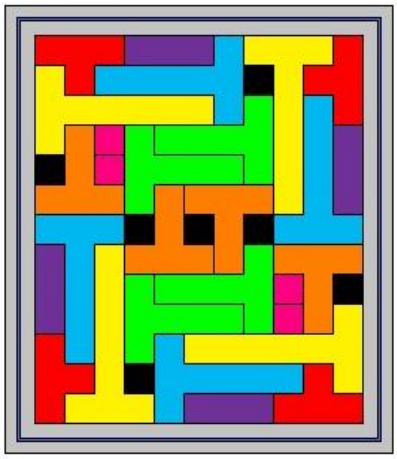


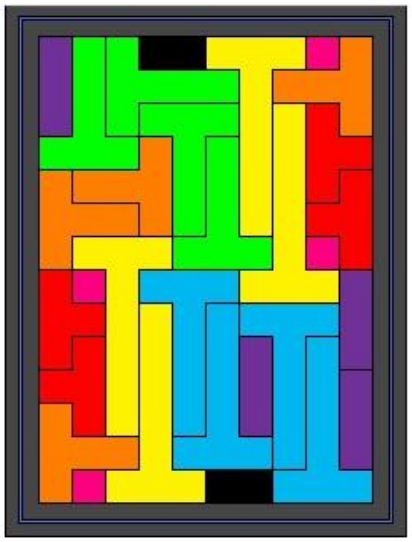


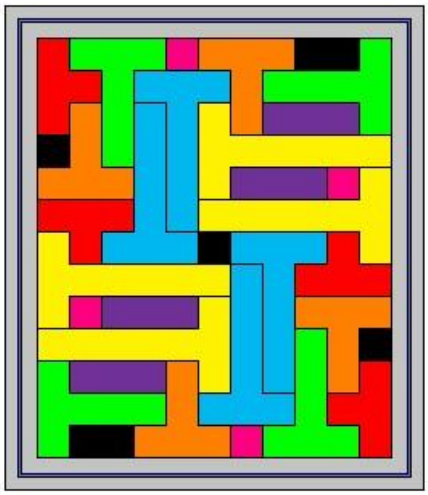


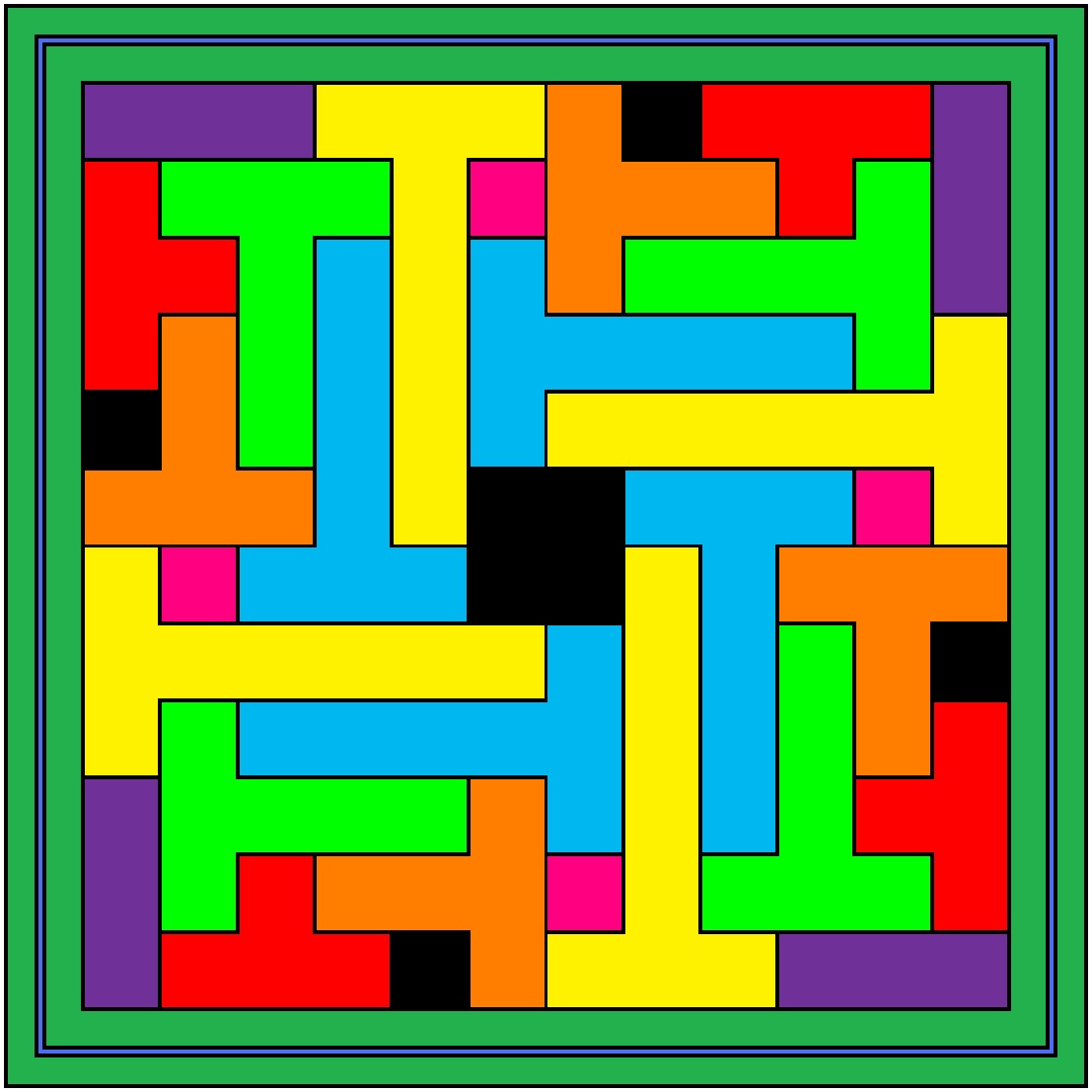












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