

01

## AC/DC

**Puzzle Goal:** Two challenges: pack the pieces in the box so that:

- Both sides are striped
- One side checkered, one side striped

**Materials:** Katalox, yellowheart, acrylic

**Classification:** 1.2 3-D

**Notes:** The pieces form a complete set of tetra-cubes.



**02**

## Bitten Biscuits

**Puzzle Goal:** Make a symmetric flat shape. There are two solutions.

**Materials:** African sapele

**Classification:** 1.1 2-Dimensional assembly



03

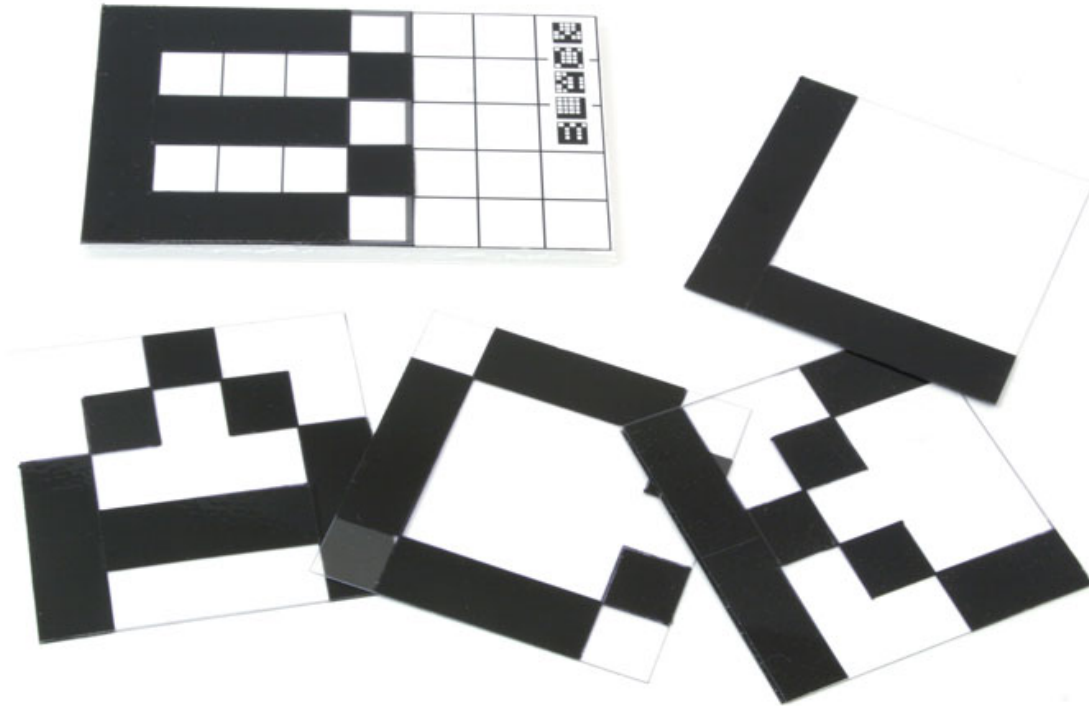
## Black

**Puzzle Goal:** Stack the five panels ("B", "L", "A", "C", "K") on the 5x8 board with cross stripes, and cover all of the board black. Two challenges:

- Place "B" within the outlined 5x5 region (as shown)
- Place "B" anywhere else

**Materials:** Vinyl, polystyrene

**Classification:** Stacking



# Build-A-Ball

**Puzzle Goal:**

**Three challenges:**

- **Easiest:** Assemble the twelve pieces to create a sphere.
- **Harder:** Assemble the pieces into a sphere such that all like-colored pieces are adjacent/connected to one another.
- **Hardest:** Assemble the pieces into a sphere such that no two adjacent/touching pieces are the same color.

**Materials:**

3D printed ABS plastic

**Classification:**

Put-together



**05**

## Carillon

**Puzzle Goal:** Put the pieces in the cylinder and close the lid.

**Materials:** Wood

**Classification:** Put-together



06

## Chain-Store

**Puzzle Goal:** Pack the chain into the box.

**Materials:** Mahogany links and purpleheart box

**Classification:** Put-together



## CheckerBored Too

**Puzzle Goal:**

Fit all five pieces into the tray so that if the empty spaces were colored in, a checkerboard pattern would result. Diagonal half-squares are allowed. Solve these three challenges:

- **ANTI-SLIDE.** Place the pieces so that no piece can slide in any direction (with no symmetry). "Slide" is defined as moving a piece one entire square length so that the pattern of squares remains intact, but the relative color patterning changes.
- **SYMMETRY.** The pieces must form a symmetrical shape within the tray (with slide).
- **SYMMETRY + ANTI-SLIDE.** The pieces must form a symmetrical shape within the tray and be (at least theoretically) anti-slide. Though there is some wiggle room, no piece can slide an entire square length.

**Materials:**

Mahogany/walnut

**Classification:**

2D Assembly puzzle



**08**

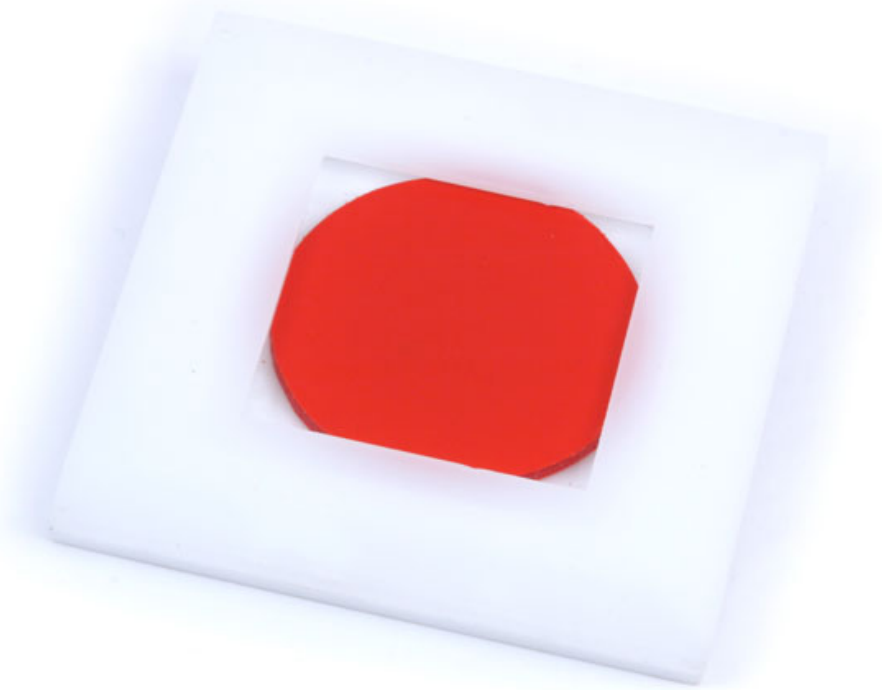
## Circle and Square (Japan)

**Puzzle Goal:** Take the red disk from the white box.

**Materials:** Acrylic board, magnet

**Classification:** 2 Take-Apart Puzzles

**Notes:** No undue force is required.





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## CRUMB

**Puzzle Goal:** Two challenges, both with unique solutions:

- Set aside the small, dark wood piece. Pack the remaining 10 pieces into the box, filling it up completely.
- Empty the box. Add the smallest piece. Pack all 11 pieces into the box, filling it up completely.

**Materials:** Mahogany, kingwood (small piece), mahogany box

**Classification:** Put-together

**Notes:** This design is inspired by the Melting Block Puzzle, previously designed by Tom O'Beirne, with the goal of eliminating the false/hybrid solutions and cleave planes that exist with the original design, so that each assembly has a unique solution.



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## Curling Box

**Puzzle Goal:** Pack the six rocks into the box, and so that no piece can slide.

**Materials:** Samena and helvea woods

**Classification:** 1.2 3-D assembly



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## Dark Star

**Puzzle Goal:** Open the box to discover its secret chamber.

**Materials:** Bubinga and wenge woods

**Classification:** Take Apart

**Notes:** No undue force is required.



# Dieaboxable

**Puzzle Goal:**

**Three challenges:**

- Arrange 24 square tab-slot dice-themed square puzzle pieces into 6 2x2 tiles and fold into a cube as a super-die.
- Taking three copies of shape C (such as the red 5) and three copies of shape D (such as the blue 6), construct a cube
- Taking two copies of shape C and four copies of shape D, or vice versa, construct a cube.

**Materials:**

Painted masonite

**Classification:**

Assembly



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## Digits' Compressor

**Puzzle Goal:** Sequentially rotate and slide the disks along the spindle to minimize the height of the stack, and so that the red attachments on the curved surfaces are lined up with the red sticks of the basic and the top.

**Materials:** Vinyl, metal

**Classification:** Sequential movement



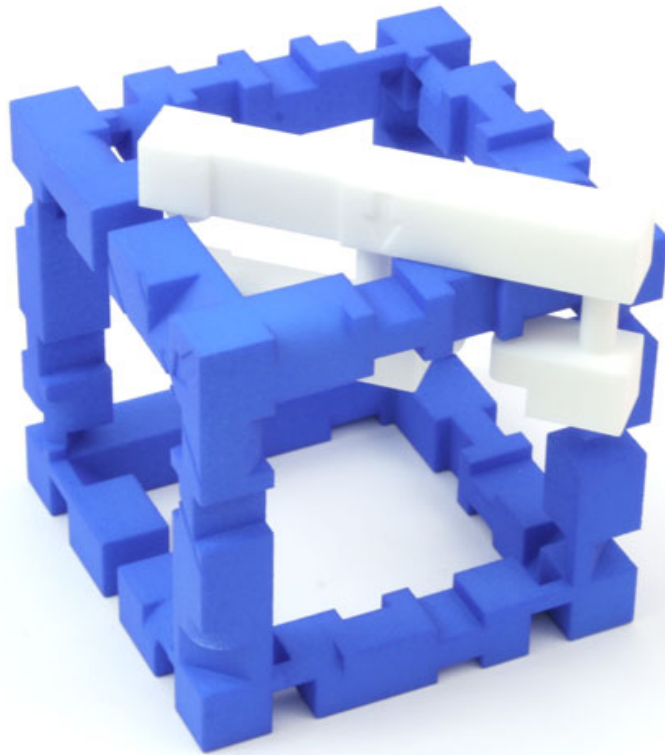
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## Duality

**Puzzle Goal:** Remove the handle, and then put back together (so that the arrows align).

**Materials:** 3D printed nylon

**Classification:** Disentanglement



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## Four Lock

**Puzzle Goal:** There are five challenges: remove any one of the five tetrominoes, then pack the remaining pieces into the corresponding tray space so that no piece can slide.

**Materials:** MDF (color print)

**Classification:** Put-together



## Growing Mirror Symmetry

**Puzzle Goal:**

First, choose a color; then choose any one of a mirror-symmetrical pieces.

Next, make a mirror-symmetrical plane shape by adding a new piece. After that, sequentially, by adding a piece and not rearranging the previous pieces, make a new mirror-symmetrical shape.

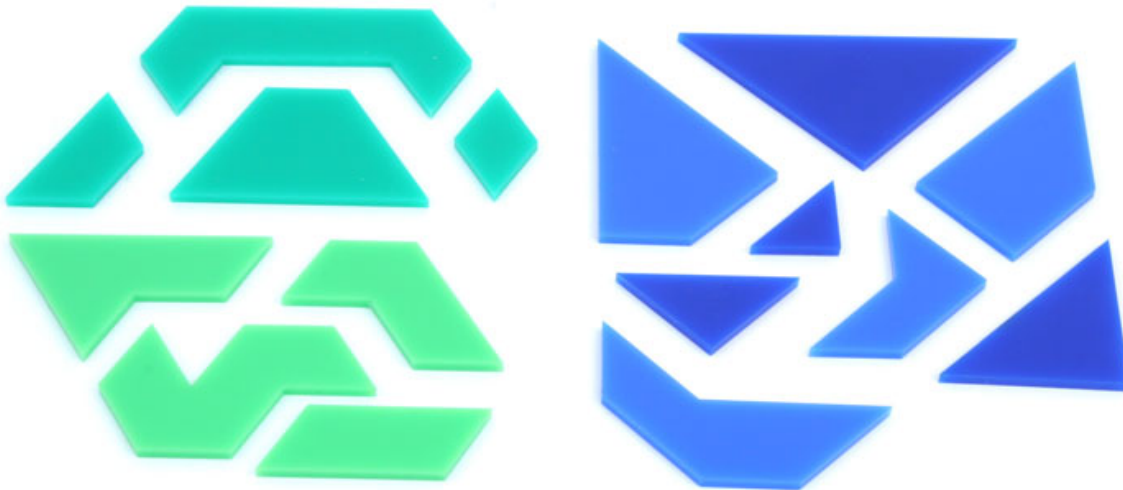
Finally, when you can make a mirror-symmetrical plane shape with all eight pieces, the challenge is complete.

**Materials:**

Acrylic

**Classification:**

2D assembly puzzle





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## Jesus +

**Puzzle Goal:** The puzzle begins by placing the cross "+" inside the tray.  
One by one, in some order, pack the letters "JESUS" into the tray by sliding them through the window; rotation is allowed. All pieces must end up fully inside the tray.

**Materials:** Wood

**Classification:** Put-together, sliding pieces



18

# LevitatRing

**Puzzle Goal:** Connect the two red dots by the ring. The stick can be used for manipulation, but cannot be part of the final solution.

**Materials:** Glass, rubber, acrylic

**Classification:** Dexterity



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# Linked-L Cube

**Puzzle Goal:** Assemble the three pieces to form an interlocking 3x3x3 cube. The connections between each L-tromino can rotate.

**Materials:** MDF

**Classification:** 3D assembly



**20**

## Little Kenny

**Puzzle Goal:** Assemble the four pieces into a 4x4x3 rectangular block.

**Materials:** Jatoba wood

**Classification:** Interlocking

**Notes:** Please leave the puzzle disassembled.



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## Lyrical Loop

**Puzzle Goal:** Fit the pieces together to make a continuous circular loop.

**Materials:** Poplar wood

**Classification:** 2D Assembly puzzle



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## Magiq#8

**Puzzle Goal:** Say "Abracadabra" and change the #8 to the #0.

**Materials:** Walnut, holly, shedua, and yellowheart

**Classification:** Packing



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## Marbles Cage

**Puzzle Goal:** Take the marbles out.  
Then put them back.

**Materials:** Polyamide and glass

**Classification:** Disentanglement



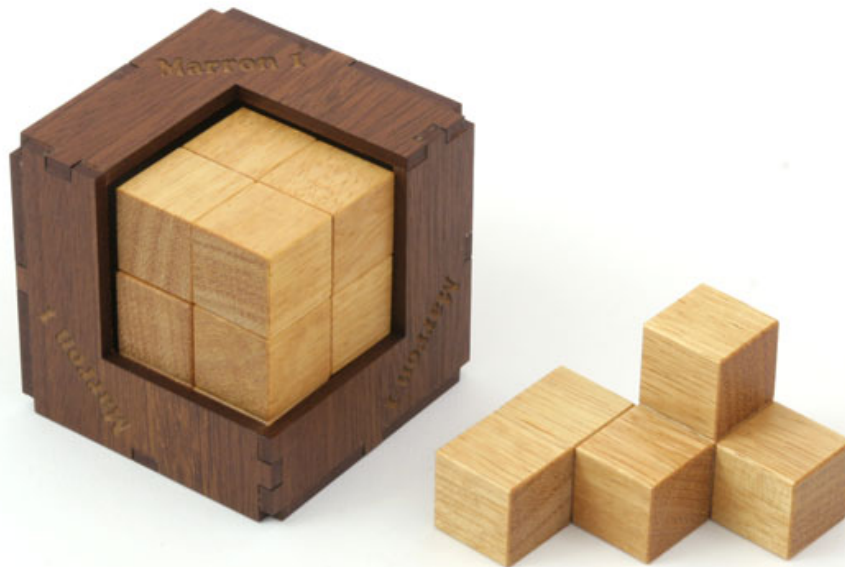
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# Marron 1

**Puzzle Goal:** Build an apparent 3x3x3 block into the box.

**Materials:** Wood and MDF (color print)

**Classification:** Interlocking





## Match Boxes Puzzle

**Puzzle Goal:**

**There are four challenges:**

- **Align the two circles**
- **Align the two rectangles**
- **Align the two triangles**
- **Separate the two cubes**

**Materials:**

Satin pine and metal screws

**Classification:**

5.5 (Sequential move)



# Matchbox Playground

**Puzzle Goal:** Select an appropriate set of pieces from the challenge cards, then link and close all of the matchboxes.

**Materials:** Smoked oak, maple, birch

**Classification:** 3.6. Miscellaneous interlocking solid puzzles

**Notes:** Includes analysis of puzzles using subsets of the 14 unique pieces. Original concept by Oskar van Deventer. Prior research by Onno Hein (smaller subsets of 20-piece set that includes six duplicates). Solutions given for sets: **ADHIL**, **BCDE**, and **CDEFIK**.



# Meandros

**Puzzle Goal:****Two packing challenges:**

- Select any three pieces and place inside the tray so that no piece can slide up, down, left, or right.
- Place all six pieces inside the tray.

**Two pattern challenges:**

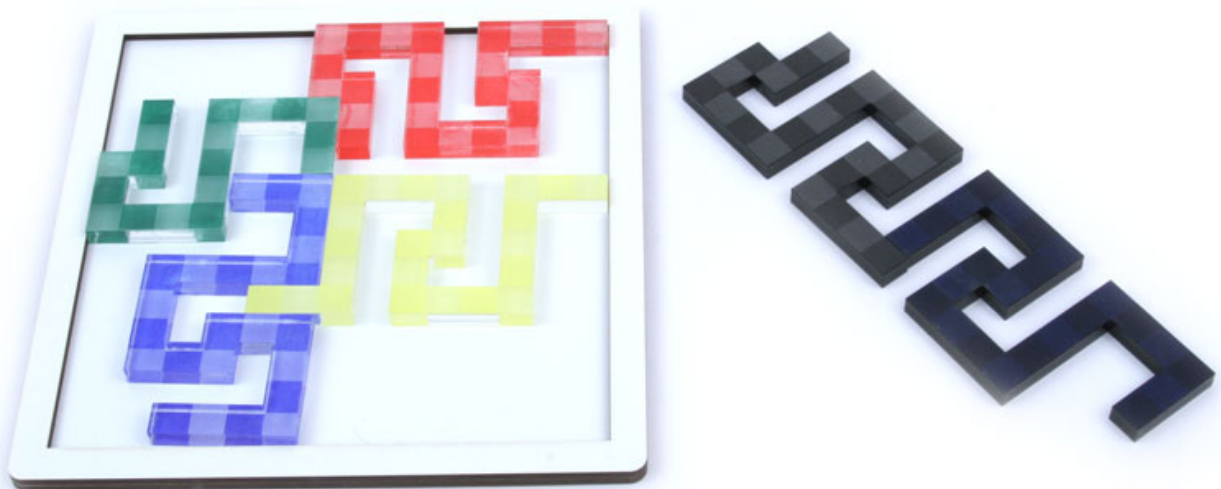
- Create a straight Meandros line (as illustrated by two pieces in photo); 3 solutions
- Create a rectangular Meandros loop

**Materials:**

Acrylic pieces, wooden frame

**Classification:**

1.1, 1.3, 3.4



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## Merry-Go-Round

**Puzzle Goal:** Slide the pieces to swap the positions of the two sets of lighter pieces (rotated 180 degrees from their original position as shown).

**Materials:** Various exotic woods

**Classification:** 5.3 SBP



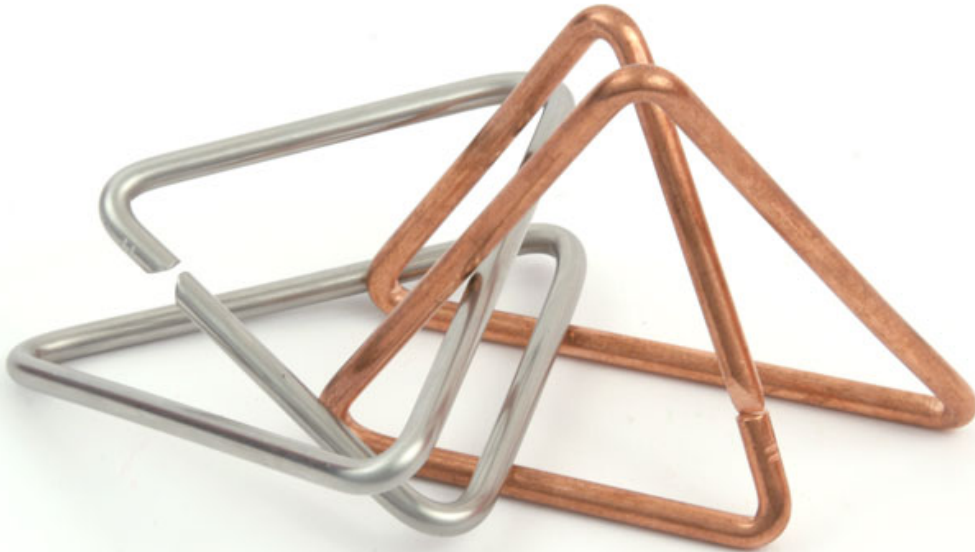
29

## Mobius Triangles

**Puzzle Goal:** Disentangle the two parts.

**Materials:** Bronze/stainless steel

**Classification:** Disentanglement



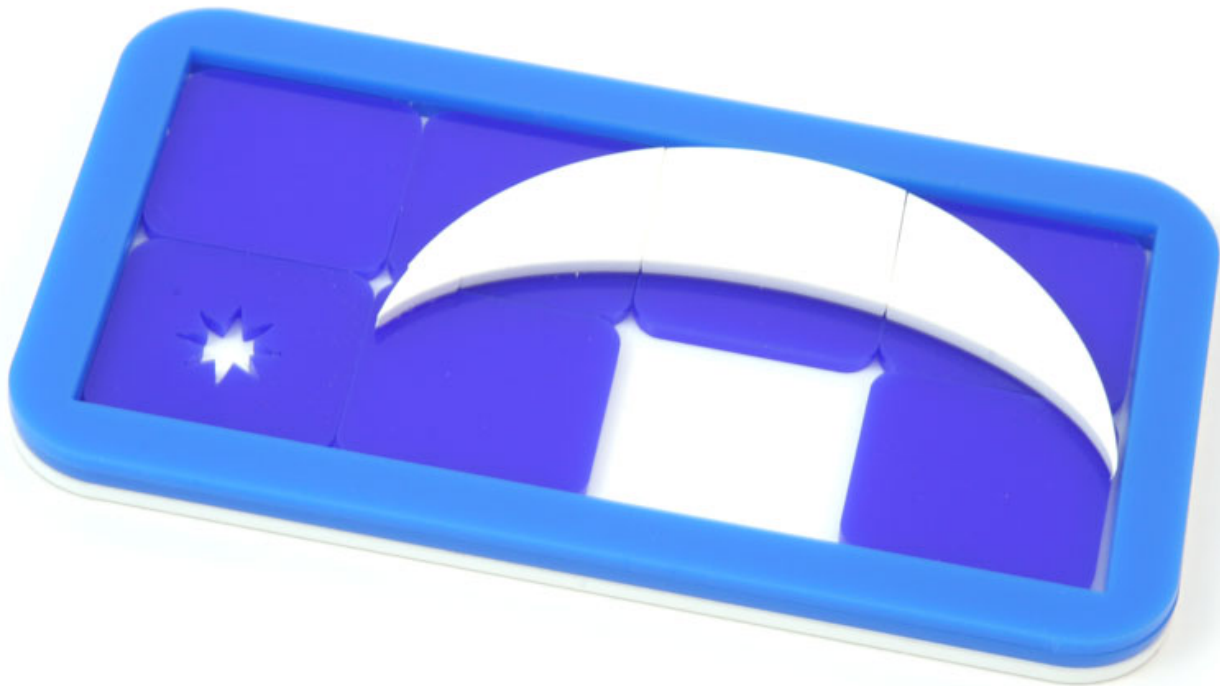
**30**

## Moon and Star

**Puzzle Goal:** Move the star from the side to the center of the moon.

**Materials:** Acrylic

**Classification:** Sequential movement



**31**

## Mr. Monkey

**Puzzle Goal:** Open the box.

**Materials:** Cherry, red toon, wenge, natmeg-yew, mahogany

**Classification:** 2.1 Trick or secret opening puzzle



**32**

## 9-Blocks Cube

**Puzzle Goal:** Make a cube with nine (different) blocks

**Materials:** Mahogany (piece) and maple (box)

**Classification:** 1.2. 3-Dimensional assembly





**33**

## No 4s Req'd

**Puzzle Goal:** Arrange the set of planar tetra-cubes to cover the given area. Either side of the tray can be used.

**Materials:** Various exotic woods

**Classification:** 1.2 3-D



**34**

## Nutty Bolt No. 1

**Puzzle Goal:** Remove the nuts and washer from the bolt.

**Materials:** Steel, zinc plated, aluminium, and copper rivets

**Classification:** Take-apart



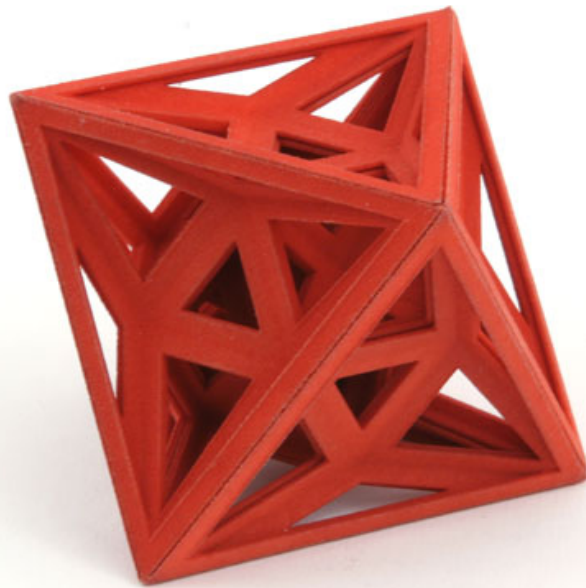
35

## Octaplex 6

**Puzzle Goal:** Assemble a 24-cell (a four-dimensional analog of the octahedron) using the six pieces made from unit octahedra.

**Materials:** SLS nylon

**Classification:** Put-together



# Parallel Universe

**Puzzle Goal:**

**Two challenges:**

- Assemble the pieces into a 2x6x6 block with parallel stripes on both sides.
- Assemble the pieces into a 2x6x6 block with one color on each side.

**Materials:**

Walnut and maple

**Classification:**

Put-together



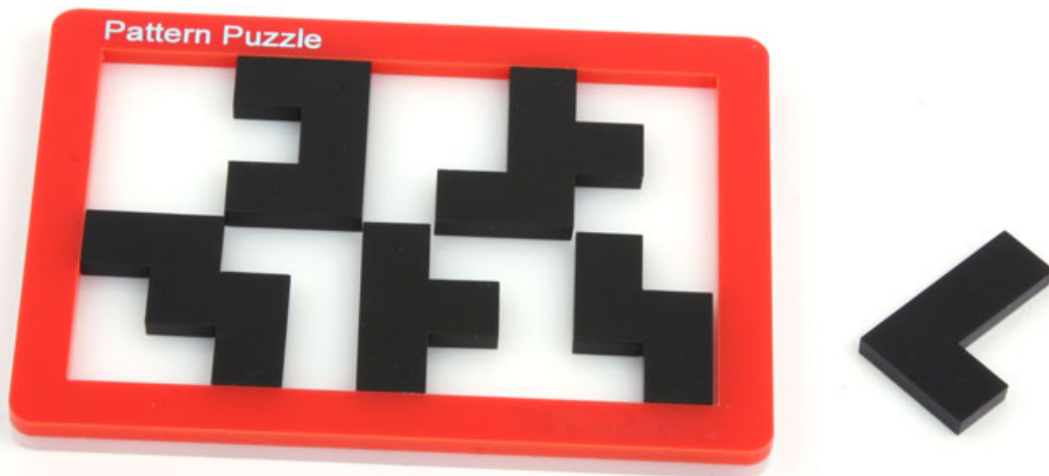
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## Pattern Puzzle

**Puzzle Goal:** Arrange the pieces flat in the tray so that resulting empty spaces are the same as the original piece shapes. The shapes (both the black pieces and the white spaces) can only touch each other at their corners.

**Materials:** Acrylic

**Classification:** Put-together



**38**

## Pencil

**Puzzle Goal:** Take the pencil completely apart, then put it back together.

**Materials:** 3D-printed plastic

**Classification:** Take-Apart / Put-Together



**39**

## Penta in a Box

**Puzzle Goal:** Pack all five pieces into the box and close the lid completely. No force is allowed.

**Materials:** Wood

**Classification:** 3D assembly



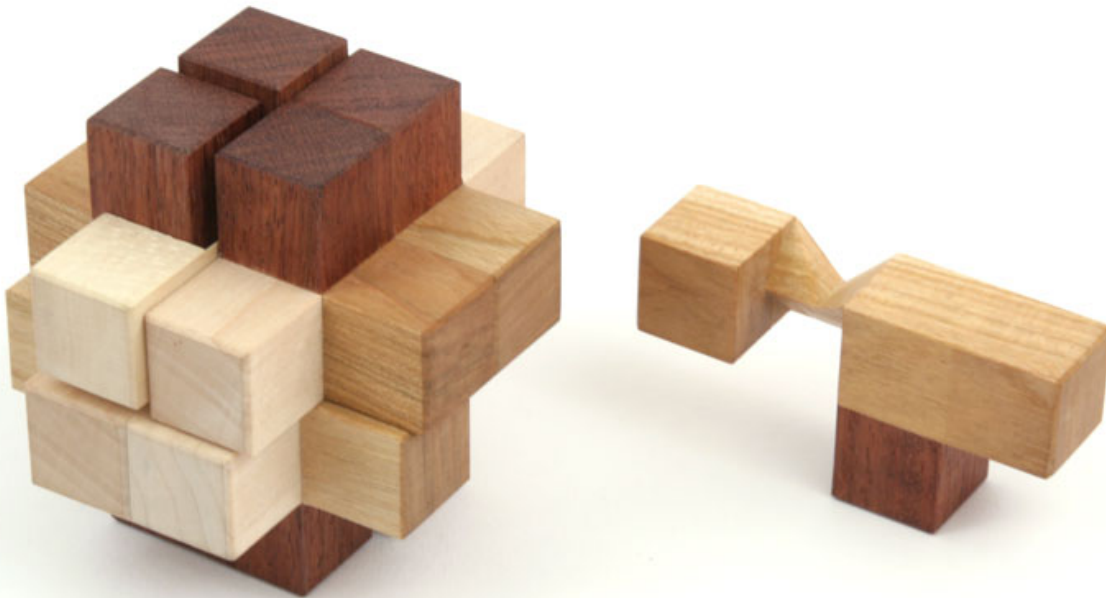
40

## Quad Slideways Burr

**Puzzle Goal:** Take it apart. Put it together.

**Materials:** Cherry, maple, mahogany

**Classification:** 3.4 Burr Puzzle





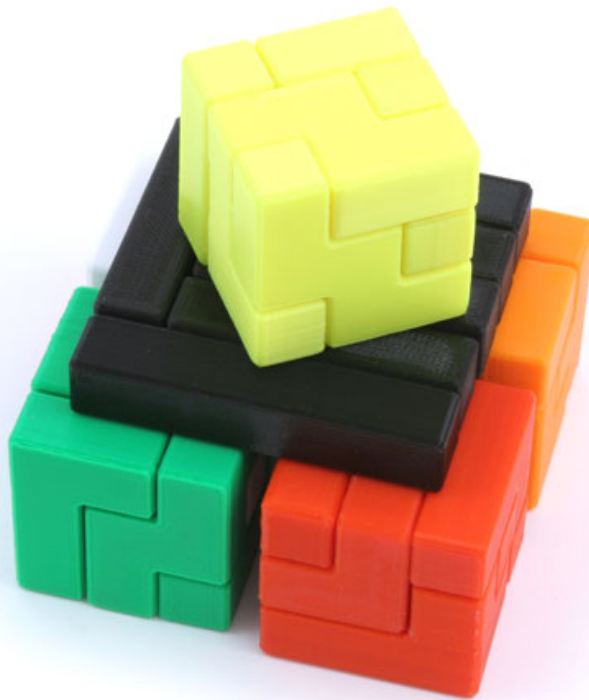
41

## Quintex

**Puzzle Goal:** Build five cubes and one square with the colored pieces and arrange them as show in the photo.

**Materials:** 3D printed PLA

**Classification:** 3D Assembly, non-interlocking



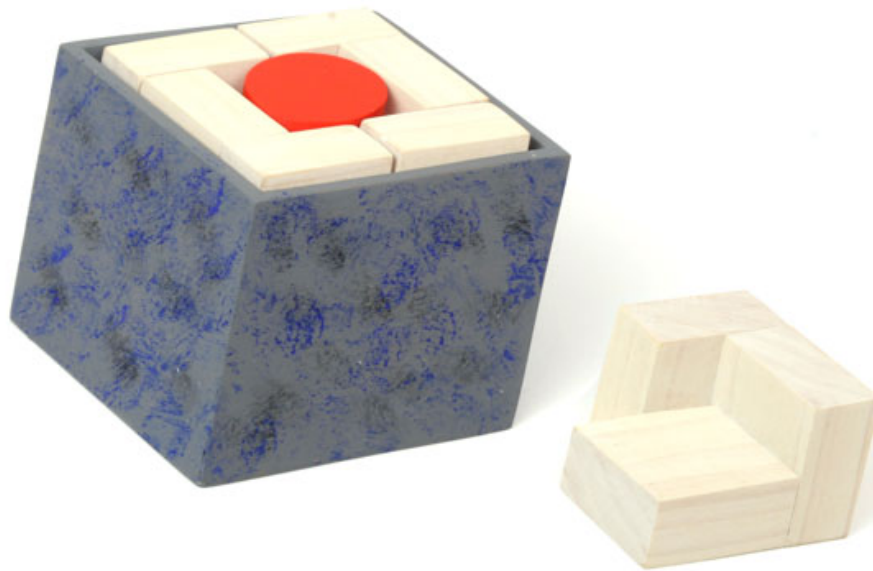
42

## Rising Sun

**Puzzle Goal:** Five pieces each consisting of three rhombic plates, plus the sun, assemble to form a rhombohedron.

**Materials:** Birch wood

**Classification:** ASS-POLY



## 7-10 Split

**Puzzle Goal:**

**Two challenges:**

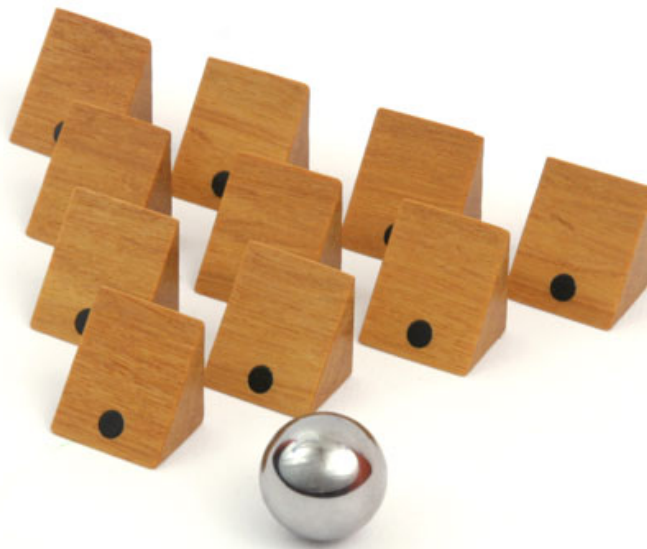
- **Magnetically attach seven of the wood pieces onto the ball.**
- **Attach the remaining three pieces so that all ten magnets are in direct contact with the ball.**

**Materials:**

Garapa wood, neodymium magnets, ball bearing

**Classification:**

3D Assembly

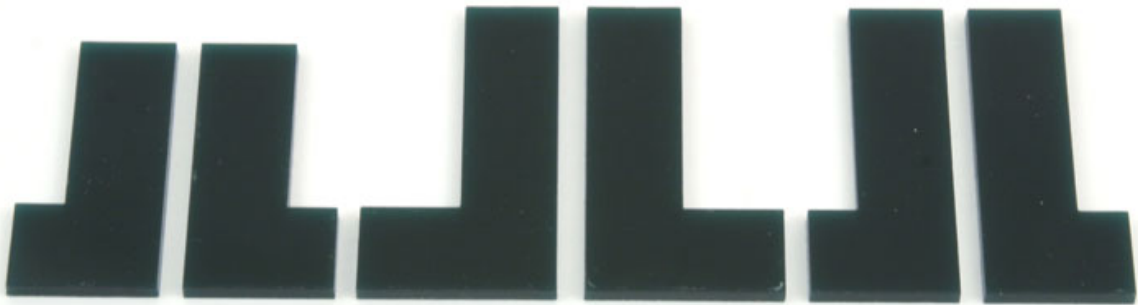


# SHE Puzzle

**Puzzle Goal:** Use six pieces to make the letters "S", "H", "E", one at a time.

**Materials:** Plastic

**Classification:** 2 Dimensional assembly



**45**

## Single Knot

**Puzzle Goal:** In the shorter rope, make a single knot like the one shown in the longer rope.

**Materials:** Wooden sticks, ropes, and a plastic ring

**Classification:** 4.3 String puzzle



46

## Sixpack

**Puzzle Goal:** Pack the six tetra cubes into the box. Pick one opening or the other, then use only that one opening to solve.

**Materials:** Samena wood

**Classification:** 1.2 3-D assembly



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## Slide Packing

**Puzzle Goal:** Pack all four pieces into the box and close the lid completely.

**Materials:** Wood

**Classification:** 3D assembly



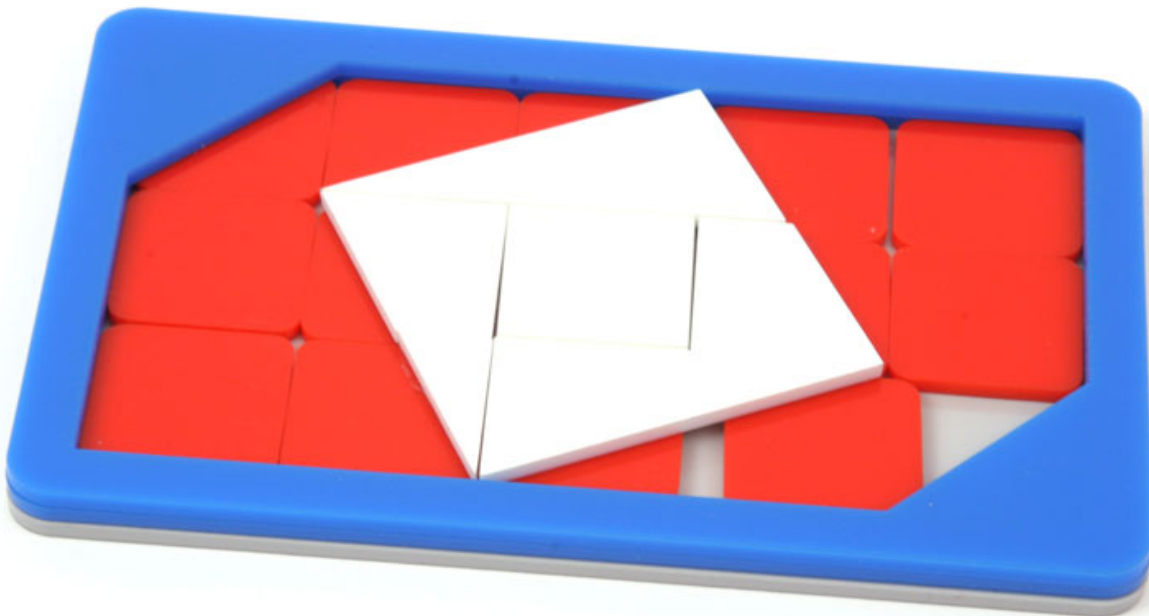
48

## Sliding Swiss Cross

**Puzzle Goal:** Starting with a square shape, slide the pieces to form a swiss cross.

**Materials:** Acrylic

**Classification:** Sequential movement





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## Slipped Discs Puzzle

**Puzzle Goal:** Slide the discs off of the cube.  
Then slide the discs back onto cube so that each disk color matches its cube face.

**Materials:** Pine, beech screws and paint

**Classification:** 5.5 (Sequential moves)



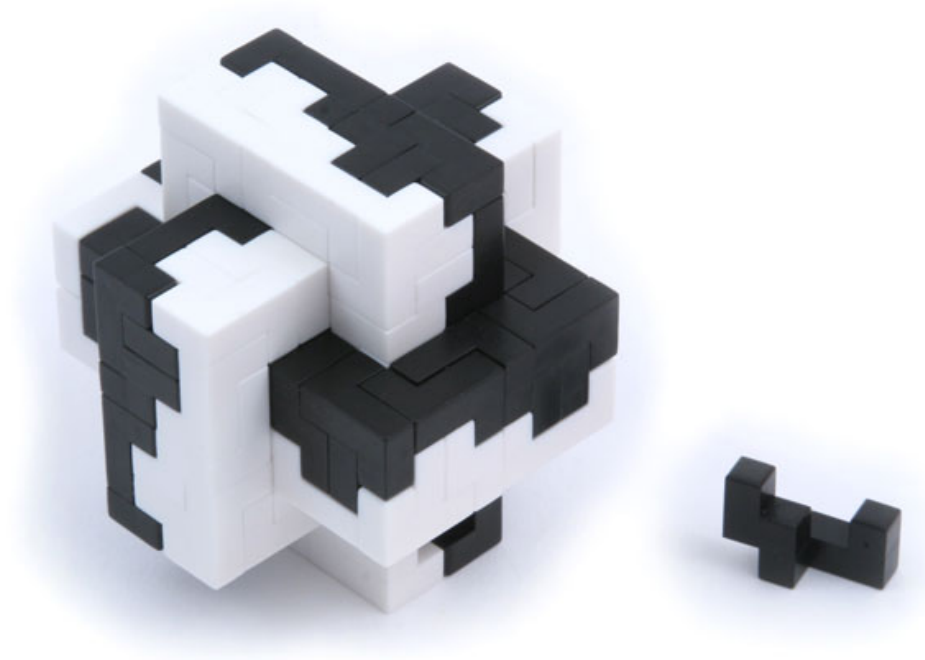
50

## Snail Ciao

**Puzzle Goal:** Create a variety of forms using only the one given octocube shape. For example, using 40 pieces, form any of the 12 planar pentominoes.

**Materials:** Plastic

**Classification:** Interlocking puzzle (INT)



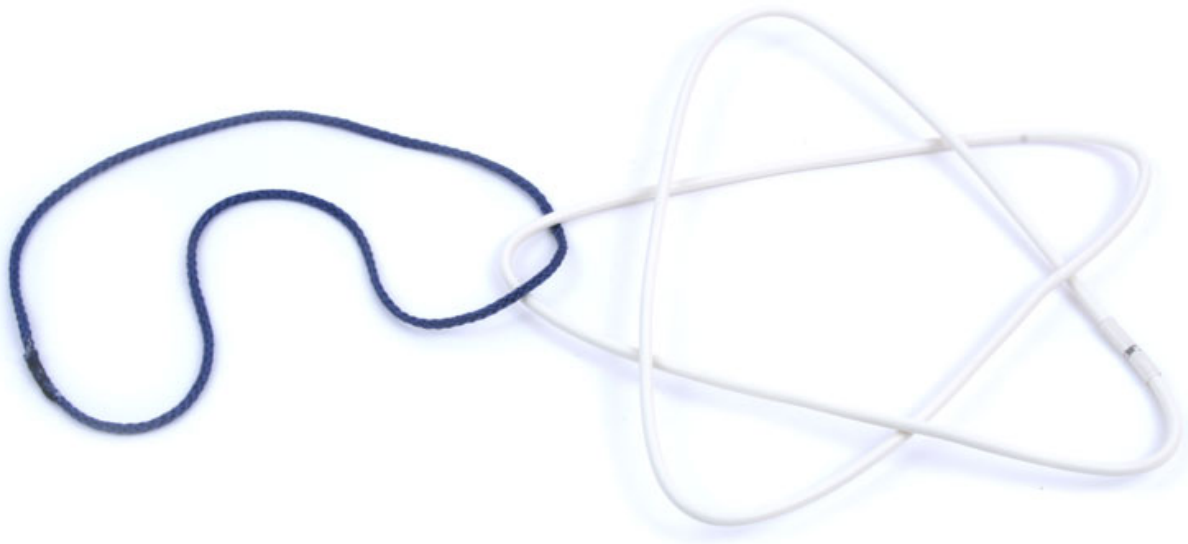
51

## Starry Line

**Puzzle Goal:** Make a star shape (pentagram) with the string in the center of the wire.

**Materials:** Wire, string

**Classification:** 3-Dimensional assembly



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## Stumbling Blocks

**Puzzle Goal:** Pack the four pieces into the box.

**Materials:** Jatoba pieces, and maple box

**Classification:** Put-together



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## The Summit

**Puzzle Goal:** Hold up the marble with three pachinko balls. The balls are free to move or be anchored by hidden magnets.

**Materials:** Wood, glass marble, pachinko ball, magnet

**Classification:** 6.0 Dexterity



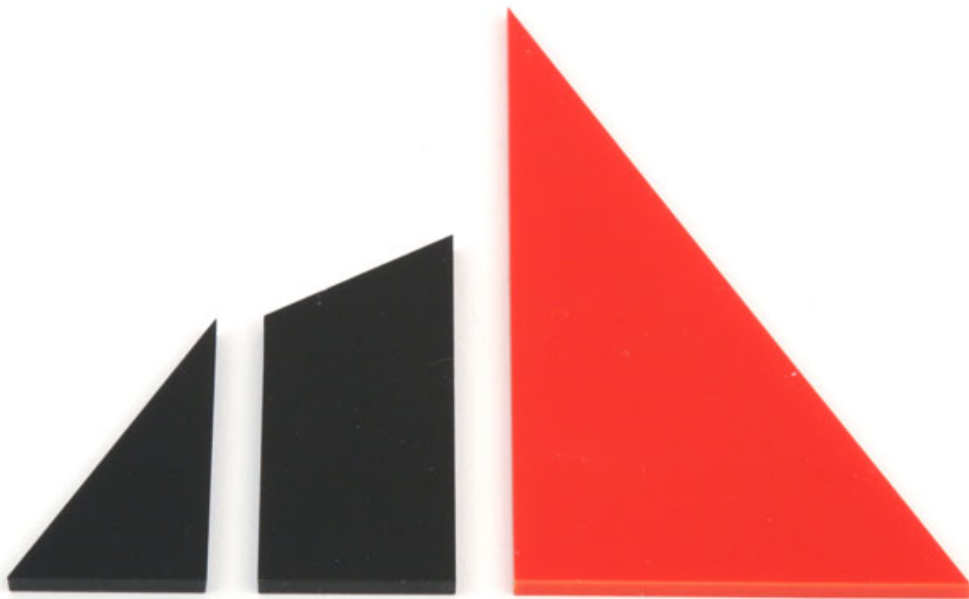
54

## Think Twice Puzzle

**Puzzle Goal:** Make a symmetrical shape. One solution is relatively easy; one solution is challenging.

**Materials:** Acrylic

**Classification:** Symmetry



55

## Toolbox

**Puzzle Goal:** Find secrets and five tools, placing them in their appropriate storage location, and then raise the red trophy cup!

**Materials:** Mahogany, olive wood

**Classification:** Sequential discovery



## Tricopter 9

**Puzzle Goal:** Scramble the puzzle by turning on the nine axes, one on each edge of the prism. After scrambling, return it to its solved state with one color per side.

**Materials:** Laser sintered nylon, vinyl, steel

**Classification:** Sequential Movement

**Notes:** Edge-turning prisms combine jumbling and non-jumbling axes, shape-shifting, and multiple types of bandaging. This design also uses curved cuts at two different radii to minimize the number of visible pieces, and enhancing the visual form.





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## Twisted Binoculars

**Puzzle Goal:** Assemble the blocks into a cube, with four colors on each face of the cube, and matching colors inside each of the holes.

**Materials:** Beech

**Classification:** Put-together



58

## Up To Snuff

**Puzzle Goal:** Open the cigar box.

**Materials:** Cigar box, various exotic woods

**Classification:** Trick-opening box



59

## WOW5

**Puzzle Goal:** Take the five tangled bands and arrange them into an orderly ring.

**Materials:** Brass

**Classification:** 1.3 Miscellaneous put-together



60

## ze Koala

**Puzzle Goal:** Open ze Koala and discover what it ate for dinner.

**Materials:** Various woods

**Classification:** Slocum 2.1

**Notes:** Mechanism is the Barcode Burr, previously designed by Lee Krasnow. The innovation of this puzzle is the challenging woodturning of the composite cube.

