

01

## 10 Cubes

**Puzzle Goal:** Construct a pyramid with a triangular or a hexagonal base, and then return the parts back into the box.

**Materials:** Padauk, ebony and plywood

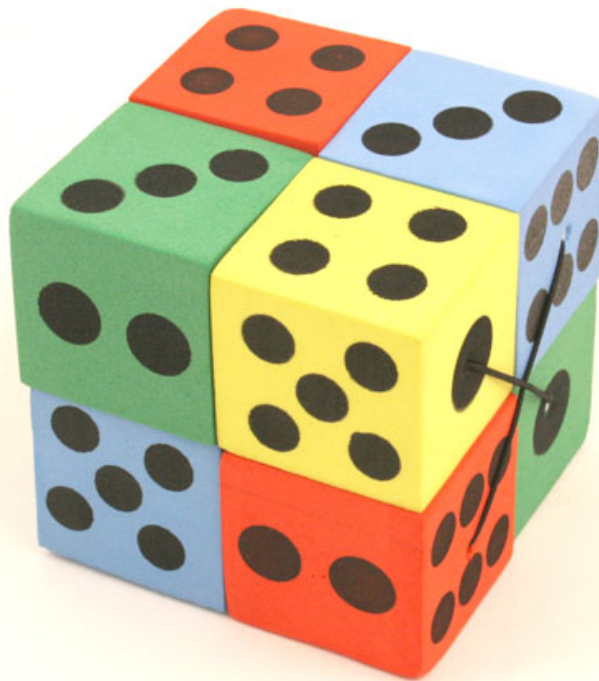
**Classification:** Put-together



**Puzzle Goal:** Make a 2x2x2 dice cube in a checkered pattern that holds its shape by only using two twists and one fold. The number of pips on each face must be 14.

**Materials:** Hard foam and elastic

**Classification:** Sequential movement



03

## 8BOT

**Puzzle Goal:**

**Move the 8BOT from the starting position (yellow) to the final position (green).**

**The 8BOT must "stand" on one or two legs, and can "roll" in any direction as long as it is again supported on its legs in the new position. The 8BOT cannot roll off the edge of the board nor onto any marble barriers. Multiple challenges are provided.**

**Materials:**

Wood, methacrylate and crystal balls

**Classification:**

Sequential movement



**04**

## A Maze in Torbus

**Puzzle Goal:** Take apart by moving the inner twisted ring (Möbius ring) through a hidden maze cut into the Anti-Möbius ring.

**Materials:** Rosewood

**Classification:** Take apart



**05**

## Arnold Dozenegger 82%

**Puzzle Goal:** Pack all 12 disks flat into the ovoid tray.

**Materials:** Acrylics and felt

**Classification:** H/D ASS 2D



06

## ASURA

**Puzzle Goal:** Disentangle the three pieces, and then reassemble the original form.

**Materials:** Polyurethane plastic

**Classification:** Disentanglement /TNG

**Notes:** The motivation of this puzzle came from the statue of Asura, an ancient Indian deity having three heads and six arms. I was puzzled at recognizing which hands are attributed to each head.



07

# Bank Heist

**Puzzle Goal:** Release the coin.

**Materials:** Bubinga, stainless steel, aluminum

**Classification:** Take-apart



08

## Bricks

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

**Materials:** Wood

**Classification:** 3-D packing

**Notes:** This puzzle has the same structure as the Conway/Slothouber-Graatsma Puzzle, but scaled by 1.5x and 2x in two dimensions.





09

## BurrNoose

**Puzzle Goal:** Remove the 6 pieces from the "noose" (the square rings around them), and then reassemble.

**Materials:** Walnut noose, with remaining pieces from wenge, padauk, bloodwood, rosewood, pau ferro and bocote

**Classification:** 3. 2 Interlocking solid - geometric object



10

## CM13

**Puzzle Goal:** Assemble and disassemble using coordinate motion.

**Materials:** Walnut

**Classification:** INT-POLY

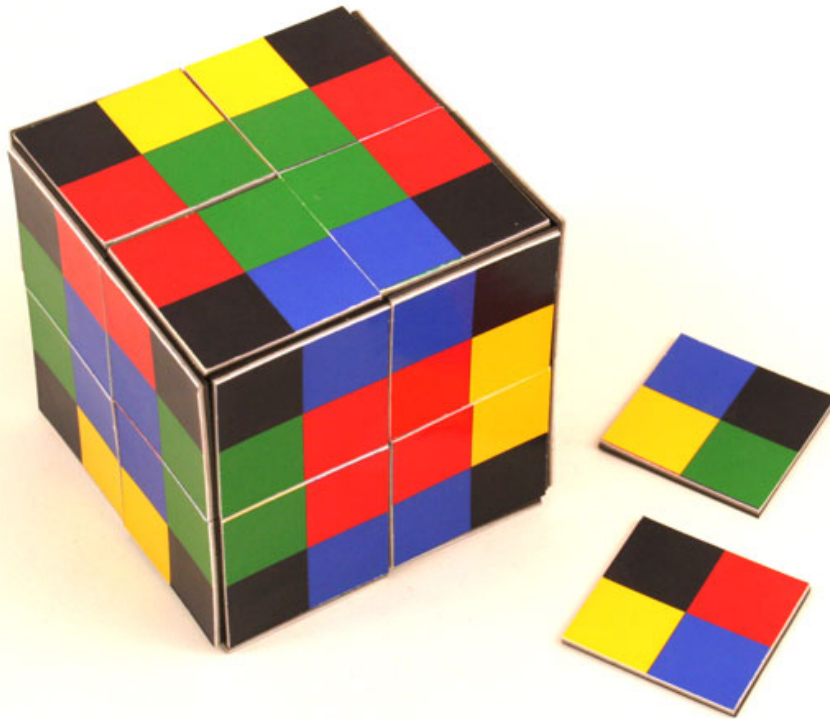


# Colour Cube

- Puzzle Goal:**
1. Place the 24 magnetic tiles on the base cube so that all the edge colors match.
  2. Place the 24 magnetic tiles on the base cube so that the edge colors do not match (ignoring diagonals).

**Materials:** Polystyrene, tinplate, plastic film, card and magnetic rubber sheet

**Classification:** 1.3 Miscellaneous put-together/PAT.EDGE



**12**

## Cross View

**Puzzle Goal:**

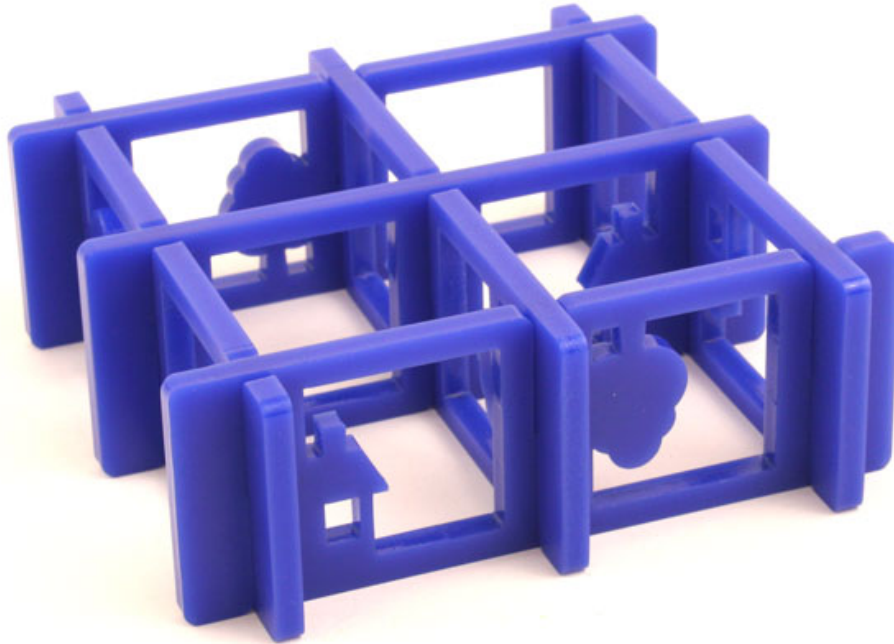
- 1. Put together the pieces into a lattice. (3 pieces will intersect the other 3 pieces at right angles.)**
- 2. Put together the pieces into a lattice so that a tree and a house will appear in each frame (two in each direction).**

**Materials:**

Acrylic plastic

**Classification:**

Interlocking solid (3.4)



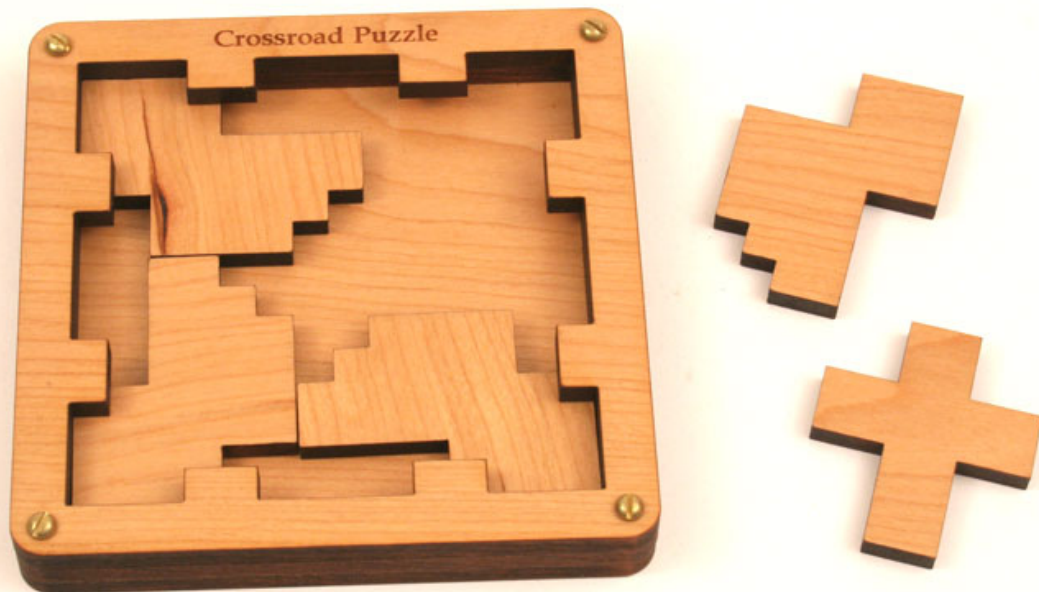
13

## Crossroad

**Puzzle Goal:** Place the five pieces flat onto the base of the tray.

**Materials:** Cherry wood

**Classification:** Put-together



14

## Cube Puzzle

**Puzzle Goal:** Assemble the two pieces into a cube.

**Materials:** Nylon, selective laser sintering

**Classification:** Geometric assembly, put-together



15

## Cubedron

**Puzzle Goal:** Arrange the five pyramids inside the sphere so that the colored edges match.

**Materials:** Polyurethane pyramids with paper stickers, inside an acrylic sphere

**Classification:** Sequential movement



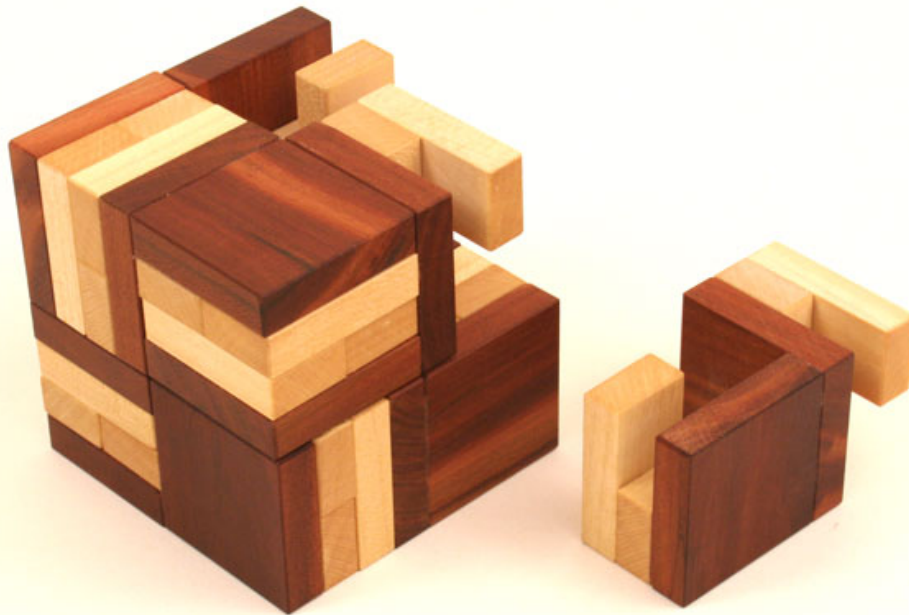
16

## Cubicula

**Puzzle Goal:** Make a cube, and other optional shapes.

**Materials:** Plum and maple

**Classification:** interlocking





17

## Dango Box

**Puzzle Goal:** Place all of the nine pieces into the box and close the lid properly.

**Materials:** Dogwood pieces; kiri box

**Classification:** 1.2 3-D Assembly



18

## Distorted Cogs

**Puzzle Goal:** Put the 16 distorted cogs into either side of the frame.

**Materials:** Rosewood, MDF

**Classification:** Put-together



19

## Easy Eight / Hard Eight

**Puzzle Goal:** Fit the letters E I G H T into the square (easy), and then into the oval (hard).

**Materials:** Walnut and cherry

**Classification:** Put-together



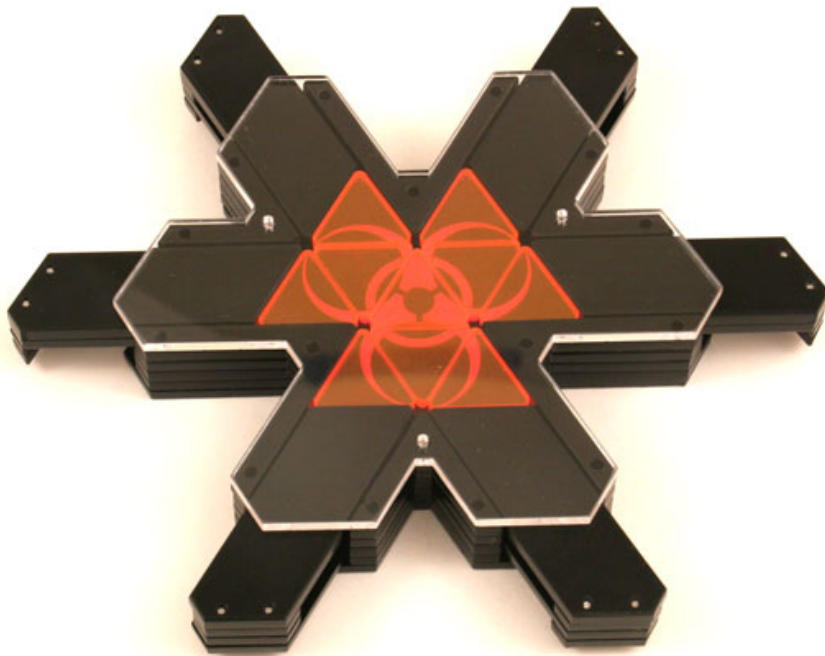
20

## Elemental: Neon

**Puzzle Goal:** Using the three plungers, shuffle the pieces and then restore the original pattern.

**Materials:** 1/8" acrylic sheet

**Classification:** Sequential movement



# Flag It

**Puzzle Goal:**

1. Connect the two ends (shown with large dots and hole) with the longest path possible (>120 units).

2. Connect the two ends with the shortest line possible (<30 units).

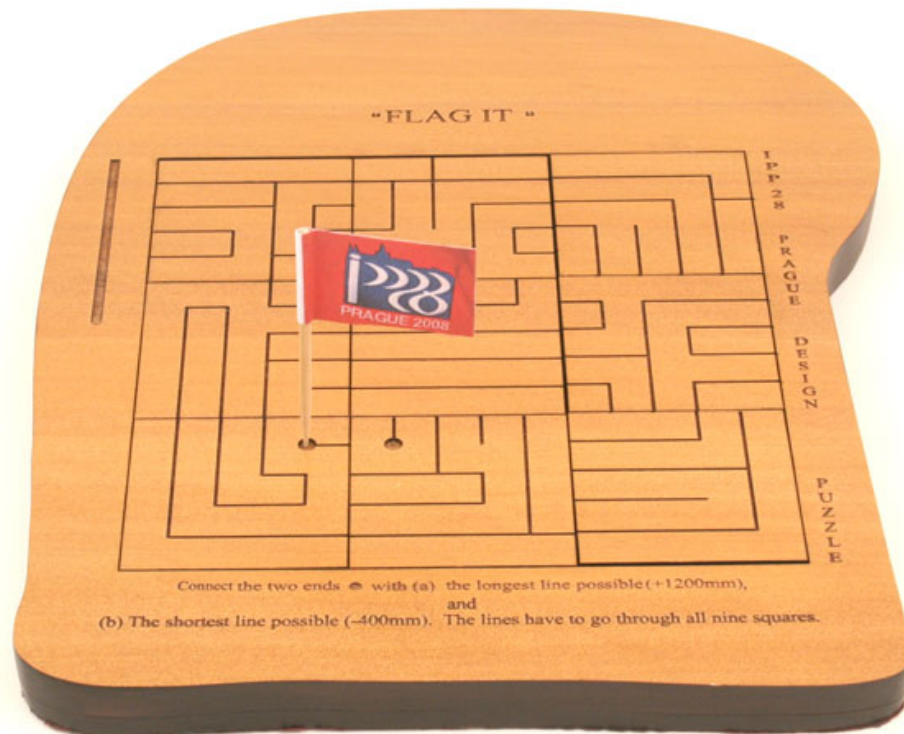
The path must go through all nine squares. The flag can be inserted in one of the starting positions, or the end can be used to trace your way through the puzzle.

**Materials:**

NZ Kauri

**Classification:**

Route finding



## Gold Coast Parking Meter

**Puzzle Goal:** Insert the 10c coin inside the fully constructed parking meter. No external tools are necessary, although you will have to find tools within, and determine how to use them.

**Materials:** Yellow leichhardt, and Mackay cedar

**Classification:** 2.1 Take-apart puzzle



**23**

## Gravity Cube

**Puzzle Goal:** Disassemble the pieces of the cube. Nine moves are needed to remove the first piece, but none of the pieces are moving!

**Materials:** Olive, zebrawood, bubinga, and modenia

**Classification:** Take apart



## Great Balls of Fire!

**Puzzle Goal:** Open each of the balls, and the figures found inside.  
The real reason why God gave you two hands and five fingers each...

**Materials:** Various woods

**Classification:** 2.1





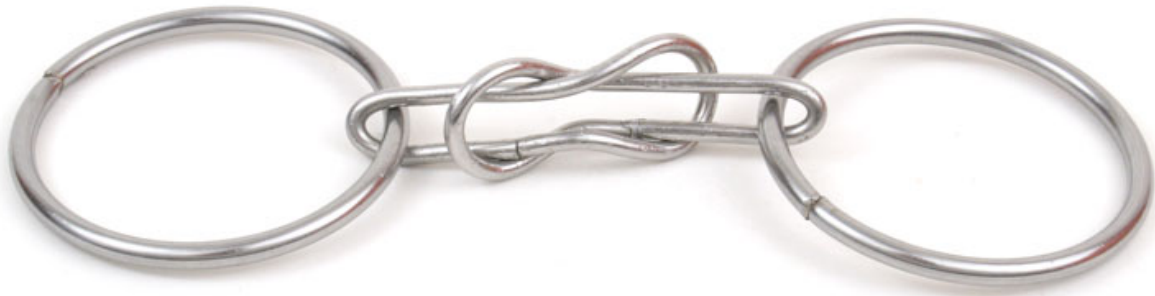
**25**

## Handcuffs Puzzle

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

**Materials:** Steel wire

**Classification:** Disentanglement puzzle



26

## Heavy Headed Burr

**Puzzle Goal:** Disassemble and reassemble the 12-piece burr.

**Materials:** Oak, rosewood and zelkova

**Classification:** Interlocking



**27**

# Ice-Bucket

**Puzzle Goal:** Open the lid of the bucket.

**Materials:** 360 Brass

**Classification:** OPN-BOX



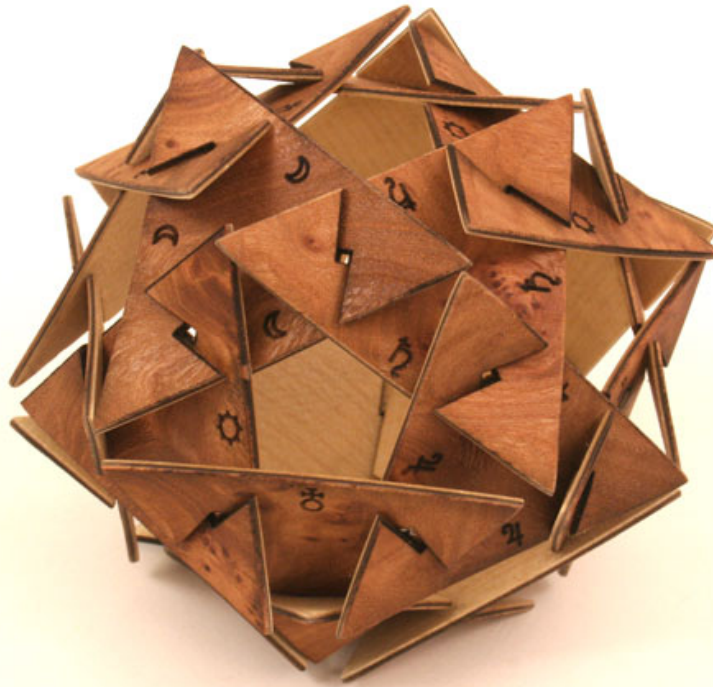
# Icosian Alchemy

**Puzzle Goal:**

1. Take apart and re-assemble with the maple on the outside (easier).
2. Re-assemble with the dark side out and make sure that there are five different alchemic symbols at each pentagon.

**Materials:** Carpathian elm burr and maple

**Classification:** INT-POLY - Interlocking polyhedral

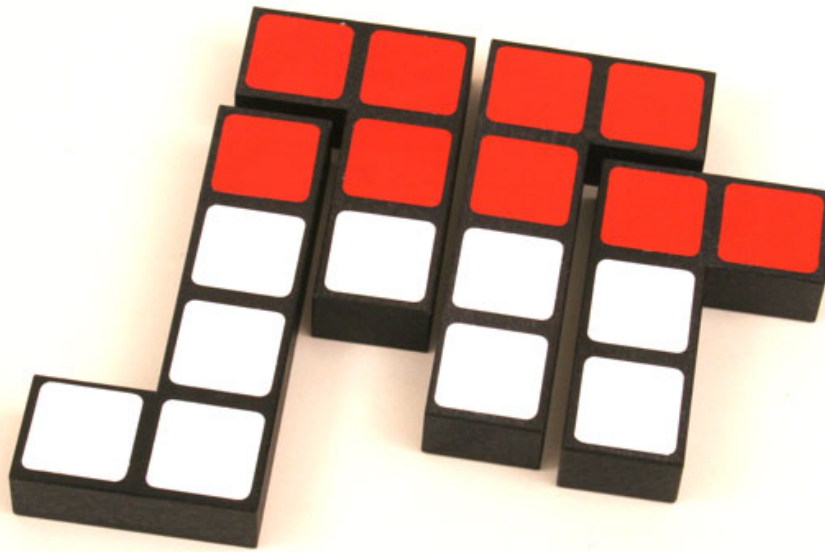


## identica-L episode 0

**Puzzle Goal:** Arrange the four L-shaped pieces so that two identical 9-ominoes appear at the same time (one is red and the other is white). Shapes may be rotated and/or reflected.

**Materials:** Wood

**Classification:** 1.1 2-Dimensional assembly



## Iris Diamond

**Puzzle Goal:** The puzzle consists of two pieces, each made of two triangular tiles. Each tile is divided into nine small triangles. Assemble the two pieces to form either a tetrahedron or a half-octahedron such that no triangle shares a corner or an edge with a triangle of the same color.

**Materials:** Acrylic and paper tiles, fishing line

**Classification:** Put-together



**31**

## Irmo box

**Puzzle Goal:** Remove the lid from the box.

**Materials:** Padauk, quilted maple, aluminum, brass, steel, acrylic

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



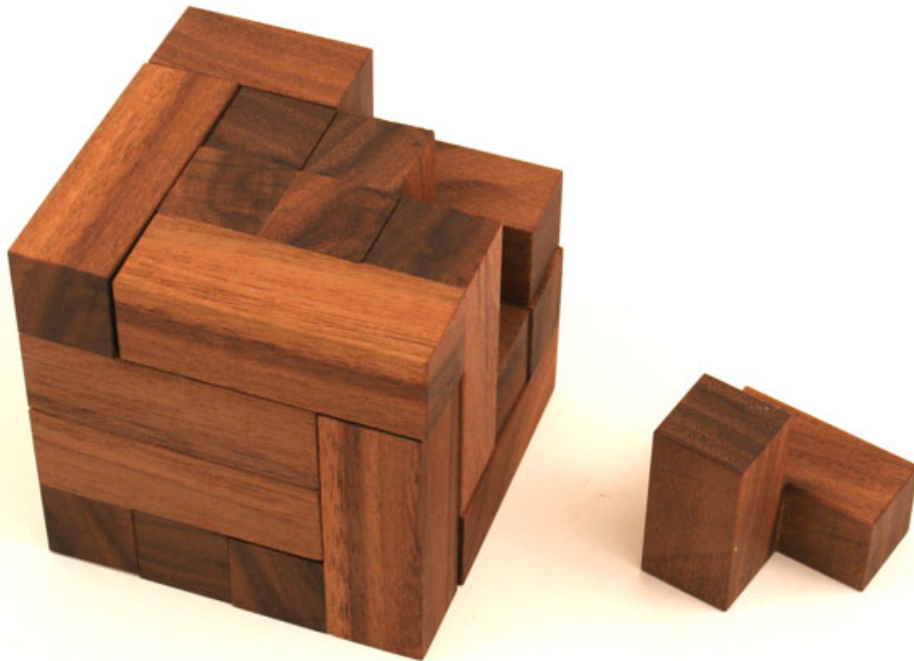
32

## L Puzzle

**Puzzle Goal:** Assemble a 4x4x4 cube, or any of the following shapes: 2x2x1, 2x2x2, 2x2x3, 2x2x4, 2x2x5, 2x2x6, 2x3x3, 2x3x4, 3x3x4, using any or all of the enclosed pieces.

**Materials:** Padauk, steel pin

**Classification:** Put-together





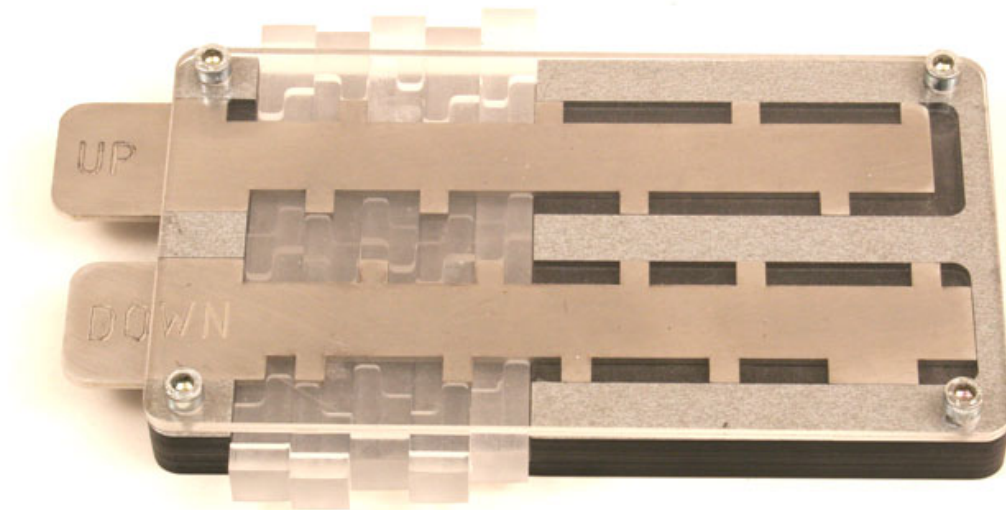
33

## la cerradura doble

**Puzzle Goal:** Remove the two keys.

**Materials:** Trispan stainless steel polycarbonate

**Classification:** Sequential movement



## Magic Smile

**Puzzle Goal:** Each of the eight states of the puzzle shows one emotion (while the other side is scrambled): happy (solved state), sad, shy, tired, silly, sick, evil, and angry.

The goal of this puzzle is to make Mr. Magic smile. Other challenges include to change Mr. Magic from happy to sad (and vice versa) using only three moves.

**Materials:** Acrylic and paper tiles, fishing line

**Classification:** Sequential movement

**Notes:** Although the mechanism has been done before, it is the first time such an efficient theme is used. Special creative artwork was designed to ensure a unique emotion for each position of the puzzle.



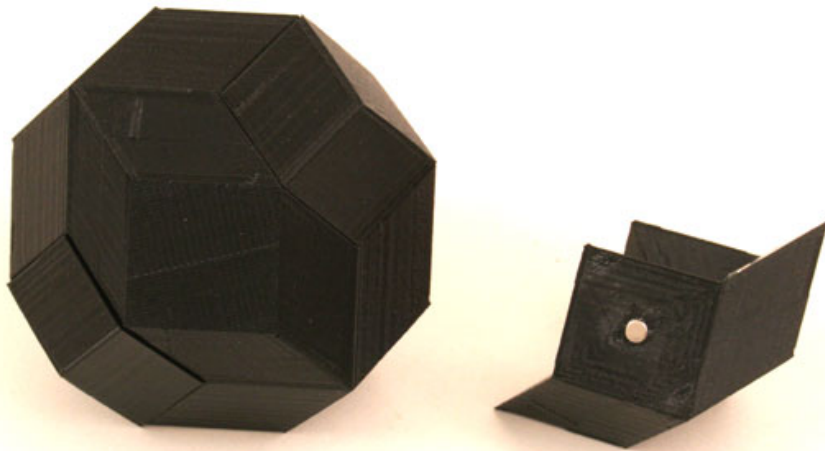
**35**

# Martingar

**Puzzle Goal:** Disassemble the four dodecahedrons and re-assemble into a truncated octahedron.

**Materials:** Acrylic and ABS

**Classification:** Slocum 1.2 3-Dimensional assembly puzzle



36

## Missyobako

**Puzzle Goal:** Get the cord out of the loop so you can remove the lid.

**Materials:** Ash, plywood

**Classification:** Disentanglement

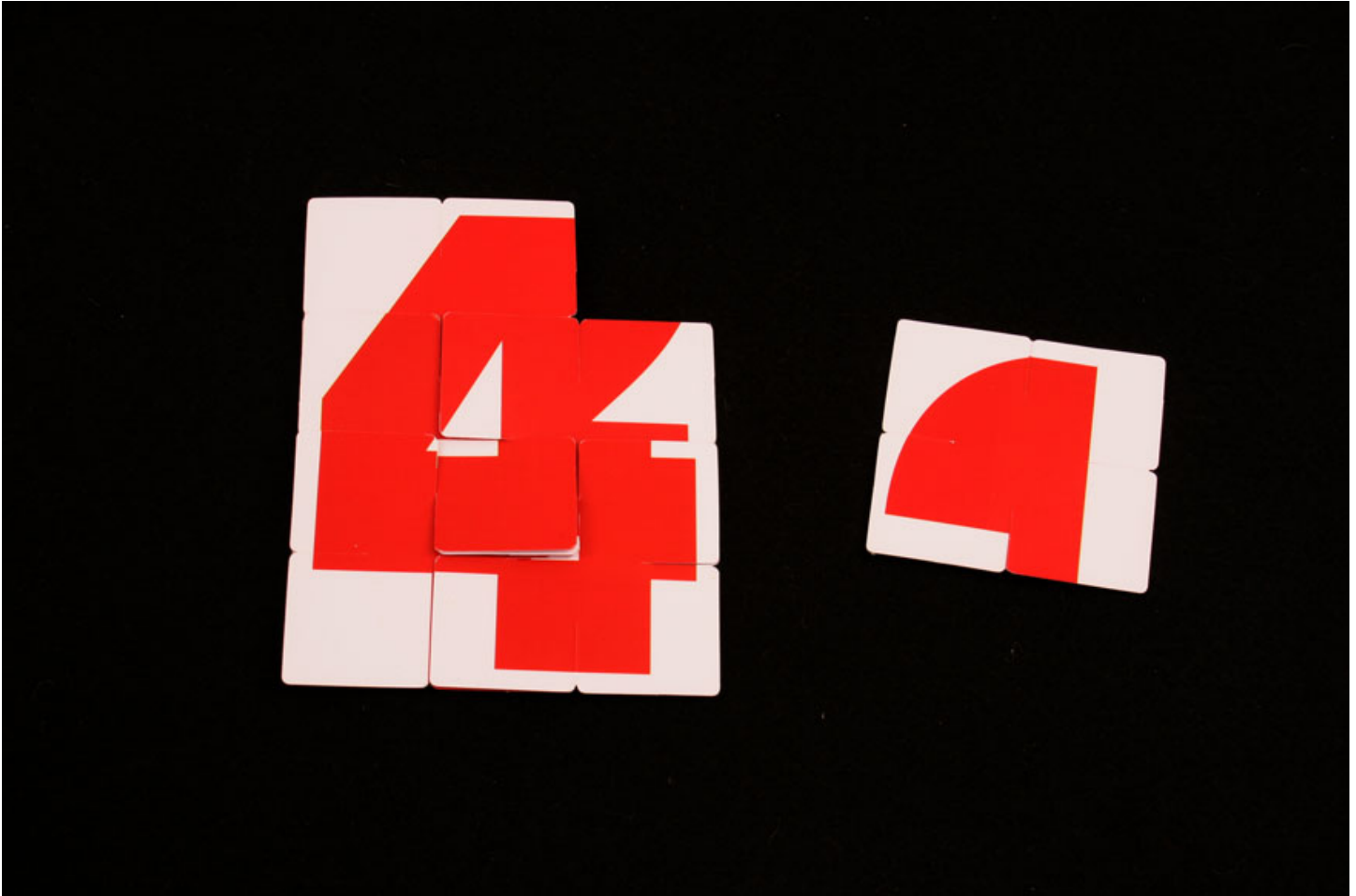


# Mozaniac Numbers

**Puzzle Goal:** Make the numbers 1 to 4 from the same six pieces.

**Materials:** Laminated paper

**Classification:** Slocum 1.2



38

## ODD Puzzle

**Puzzle Goal:** Place all three pieces into the box so that none of them sticks out.

**Materials:** Pieces: rengas and movingui; box: oak and walnut

**Classification:** 1.2 3-Dimensional assembly



39

## PENTAPARADOX-21

**Puzzle Goal:** Is it possible to add one more element (the cross) into the tray with 20 elements already filled?

**Materials:** Plastic

**Classification:** 2-D Packing

**Notes:** The pieces of the puzzle constitute a complete set of flattened pentominoes: 21 pieces. The chosen compression ratio of  $17/25$  enables the ambiguous tray dimensions. Beside the cross element, any piece of the set can serve as the "extra" element to be added.



**40**

## Penta-Puzzle

**Puzzle Goal:** Assemble the twelve pieces into a spheroid of six symmetrically interlocking pentagons.

**Materials:** Combination of six different woods and 24 magnets

**Classification:** Put-together interlocking burr, and dexterity





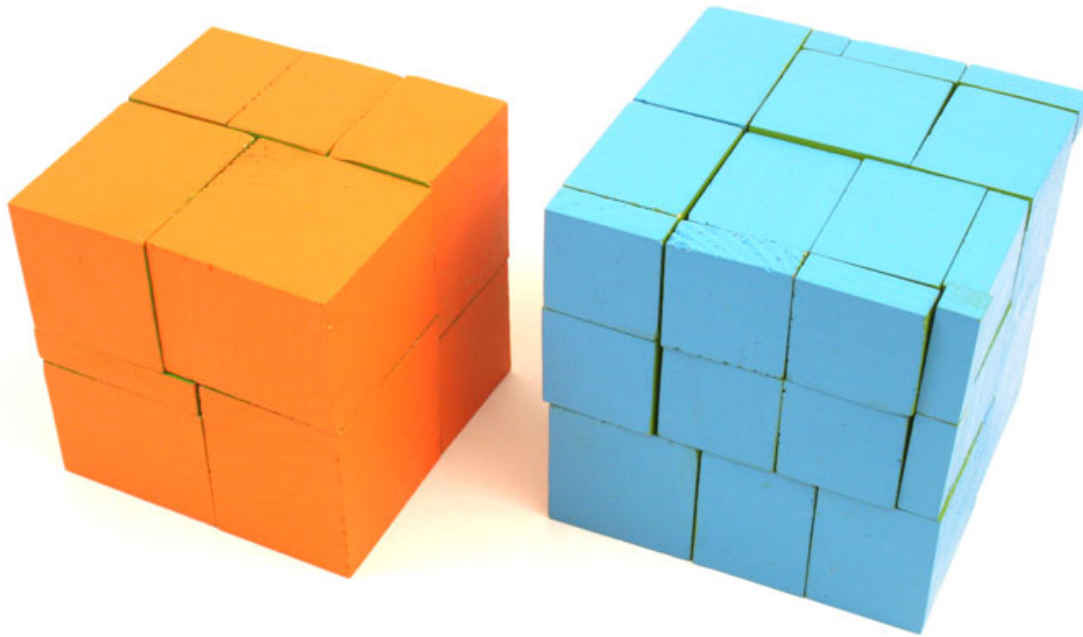
41

## Ramanujan's Box

**Puzzle Goal:** 1729 is the Hardy-Ramanujan number: the smallest integer that is the sum of two positive cubes in two different ways. Assemble the 38 colored cuboids in the following three ways: a  $9^3$  cube and a  $10^3$  cube; a  $12^3$  cube and a  $1^3$  cube; and finally, a single  $19 \times 13 \times 7$  cuboid. Each cuboid must be in a single color.

**Materials:** Painted wood

**Classification:** Take-apart



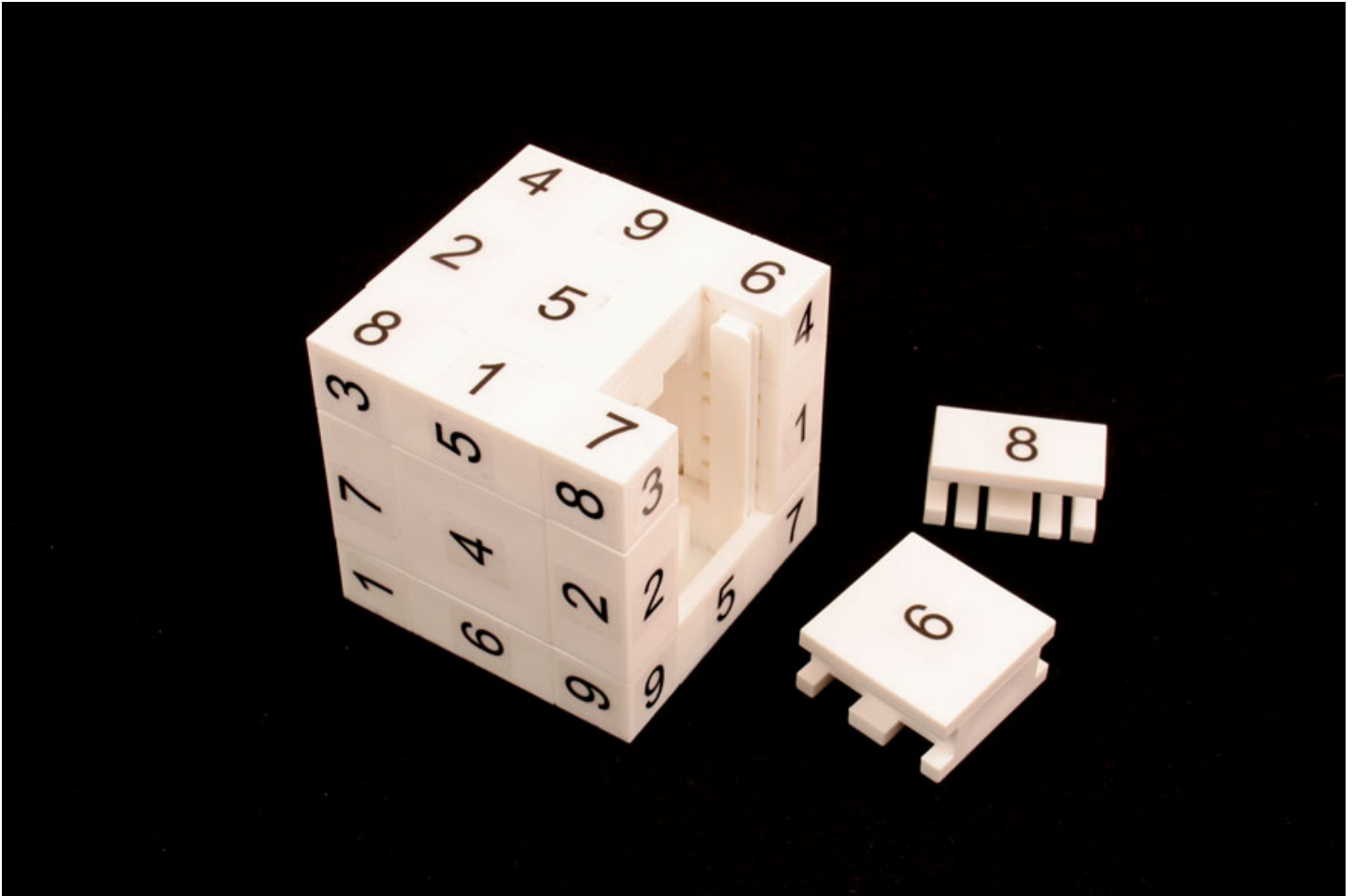
42

## rekubus

**Puzzle Goal:** First, simply assemble a cube from the 38 pieces, and then assemble the cube so that each face has each of the digits 1-9.

**Materials:** Polystyrol

**Classification:** Put-together



43

## RondoMagic

**Puzzle Goal:** Manually reverse the three outer pieces of the path by 180 degrees to get the starting position, and then restore the original path using the rotation tool (rotating three adjacent pieces simultaneously).

**Materials:** Birch plywood, acrylic, metal screws, magnets

**Classification:** SEQ-RT2D



## Secret Base

**Puzzle Goal:** Find the two secret compartments.

**Materials:** Shiuri cherry, oak, zebrawood, rengas, keyaki, and katura

**Classification:** Take-apart

**Notes:** The craftsman often watched TV robot animation. When a bad enemy destroys the town and the peace of the people, the shutter of a secret base that is hidden under the ground opens and a robot of the justice comes out to save the peace. It was an exciting scene. The shutter is the motif of this work.



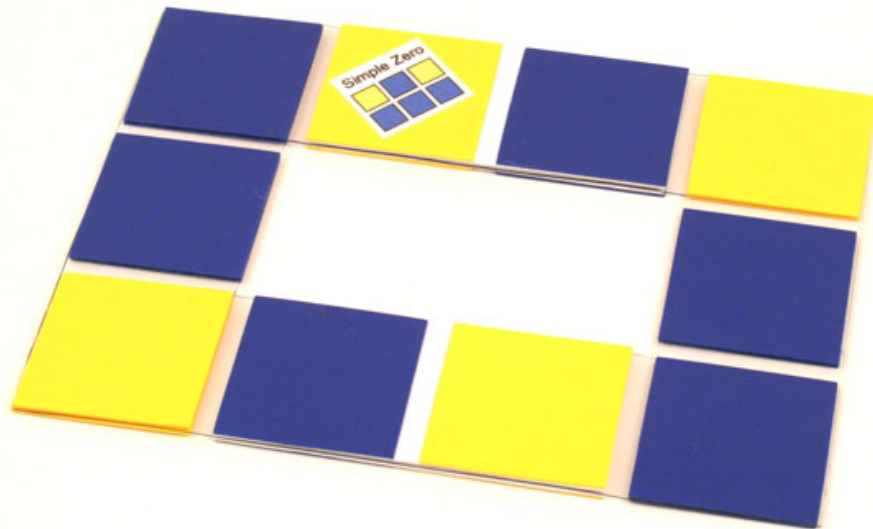
45

## Simple Zero

**Puzzle Goal:** Make the 2x3 pattern shown on the puzzle body. Note that the middle gaps in the long edges do not fold.

**Materials:** Plastic board

**Classification:** Folding



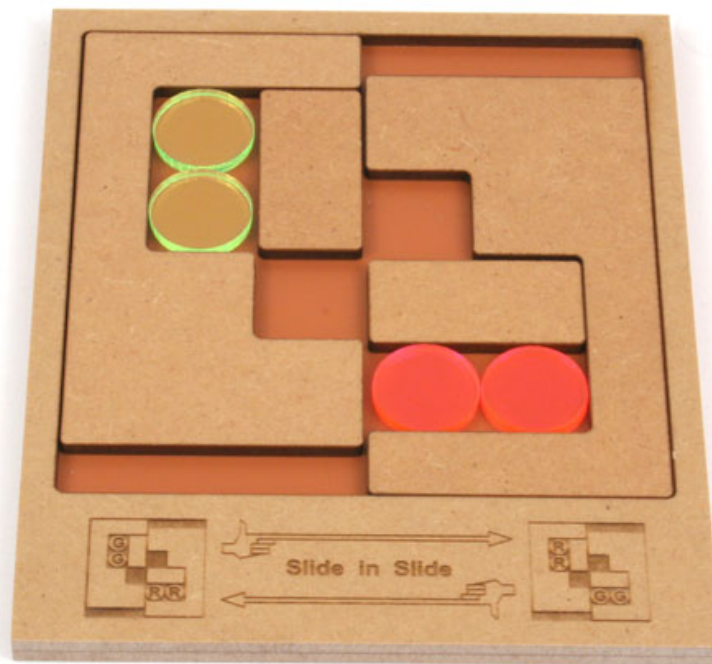
46

## Slide in Slide

**Puzzle Goal:** Swap the positions of the green and red pieces.

**Materials:** MDF board and acrylic

**Classification:** Sliding piece



47

## Spade & Heart

**Puzzle Goal:** Use all four pieces to make a spade; then make the triangle "disappear" by using all four pieces to make a heart.

**Materials:** Acrylite

**Classification:** 1.1 2-Dimensional assembly, and 8. vanishing



48

## Straight Forward

**Puzzle Goal:** Move ball the bearing in a straight line from START to FINISH.

**Materials:** Queensland blackbean

**Classification:** Hidden mechanism





49

## Sweet Deceiver

**Puzzle Goal:** Disassemble and reassemble the unusual Diagonal Burr.

**Materials:** Bocote, Peruvian walnut, and yellowheart

**Classification:** Slocum: 3.4 (Interlocking) burr



**50**

# Tangerine

**Puzzle Goal:** Take apart and put together.

**Materials:** ABS plastic

**Classification:** Take-apart



51

## Tease

**Puzzle Goal:** Disassemble and reassemble the five pieces to form a cube.

**Materials:** Mahogany and Oak

**Classification:** INT - CART



## Three Pyramids of Geezer

**Puzzle Goal:** Assemble the three sets of 6 ball-pentomino pieces to make three 4-level square-based pyramids.

**Materials:** acrylic, polyethylene, and steel pins

**Classification:** Three-Dimensional Assembly

**Notes:** *Special instructions for the white pieces:* this pyramid requires a small amount of force to snap certain pieces together, which is why it is made with steel joints. All pieces should retain their planar shape throughout, so please try not to rotate or pull apart the joints.



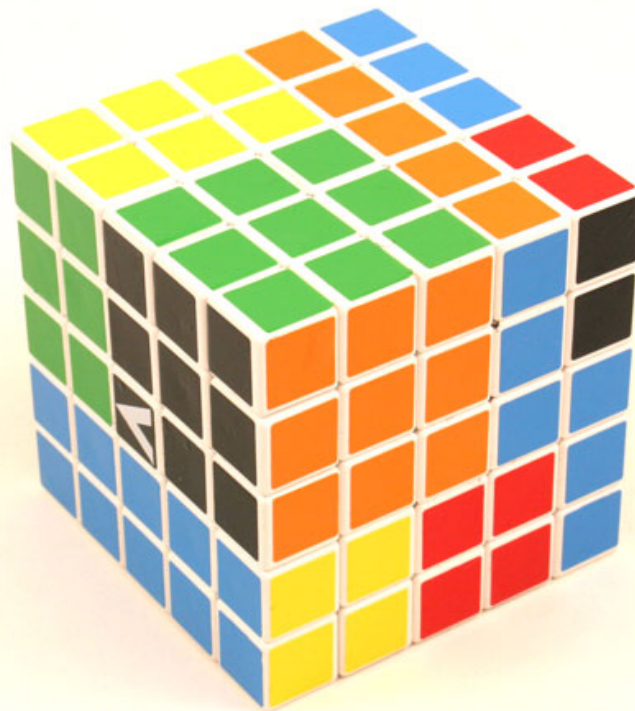
## V-CUBE 5

**Puzzle Goal:** 5x5x5 Rubik's Cube: rotate layers to randomize the faces, and then restore each face to a single color.

**Materials:** ABS plastic and stickers

**Classification:** Sequential movement

**Notes:** Designers claim a new structural design, much sturdier and smoother than Rubik's or Eastsheen's version of the puzzle.



## V-CUBE 7

**Puzzle Goal:** 7x7x7 Rubik's Cube: rotate layers to randomize the faces, and then restore each face to a single color.

**Materials:** ABS plastic and stickers

**Classification:** Sequential movement



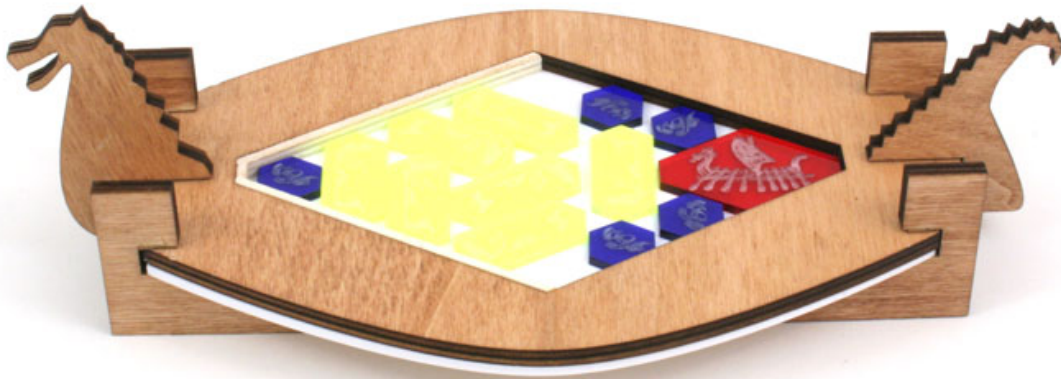
55

## Viking's Journey

**Puzzle Goal:** Move the red tetrahex piece from the tail to the head of the ship. Pieces can only move whole units in any of six hexagonal directions (no rotation).

**Materials:** Laser cut Italian poplar plywood and acrylic in four colors

**Classification:** 5.3 Sliding piece



56

## Woo Tuck Fook! The Vessel of Prosperity

**Puzzle Goal:** Open the vessel in three steps.

**Materials:** Australiana woods, electronics

**Classification:** Slocum 2.1





# Zoo Panic!!

**Puzzle Goal:** Use the fences on the four transparent sheets to separate animals into pens containing only the same species (and not separating adjacent animals of the same species).

**Materials:** Wooden tray, with paper polyester sheets

**Classification:** Put-together

