01

Golf Ball Cage

Puzzle Goal:

Extract, and return golf ball to inside of cube.

Materials:

Walnut, golf ball

Classification: Misc. Assembly

02

Radix

Puzzle Goal:

Take the three pieces apart, and then put them back together again. No force is required.

Materials:

Cast Alloy

Classification: Take Apart

03

F L E X A L E X

Puzzle Goal:

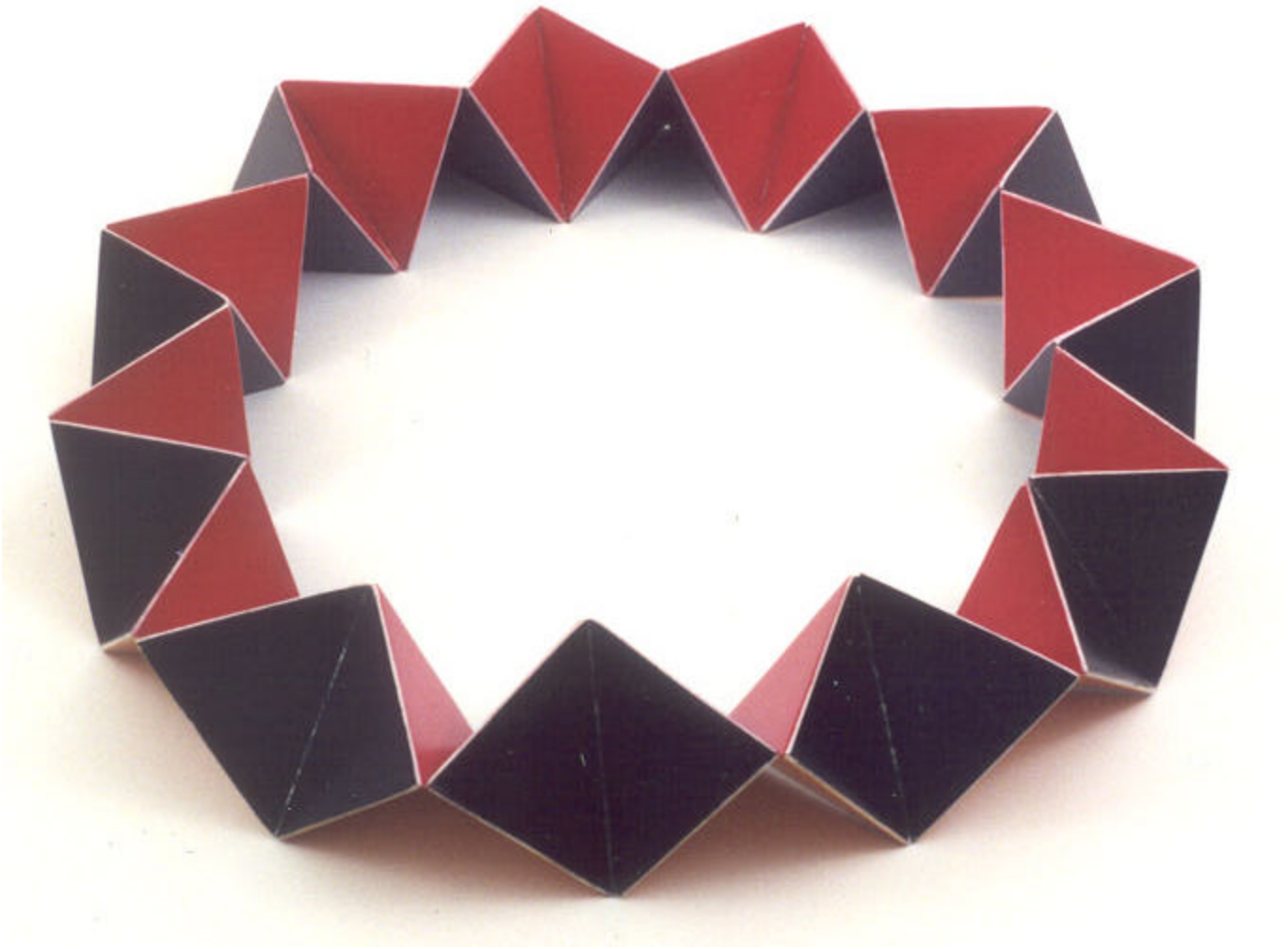
Transform the rhombic dodecahedron from red to green, blue or yellow.

Transform the rhombic dodecahedron to 4 rhombohedrons in line.

Materials:

PVC and tissue tape

Classification: FOL-HGCL



04

L U C ’S S P A C I A L

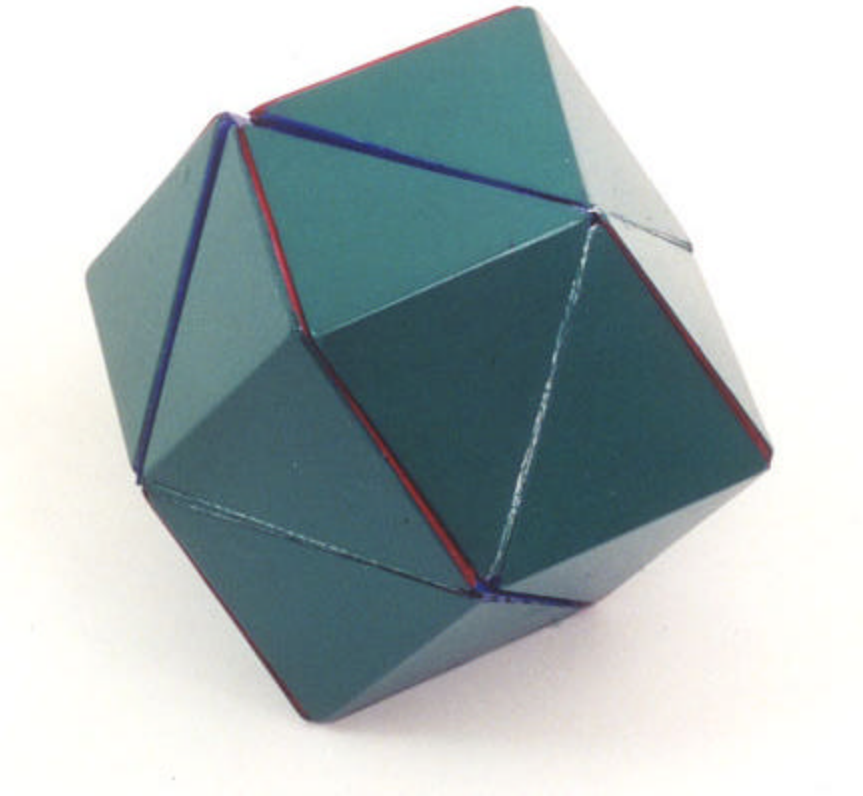
Puzzle Goal:

Transform the surface of the rhombic dodecahedron from red to green, or green to red.

Materials:

PVC and tissue tape

Classification: FOL-HGCL



05

Concrete Puzzle

Puzzle Goal:

Combine the elements to form a cube

Materials:

Casting-mortar

Classification: Put together

06

Cross-Based Puzzle

Puzzle Goal:

Construct the prism

Materials:

Cedar wood

Classification: Interlocking assembly

07

Double Stair

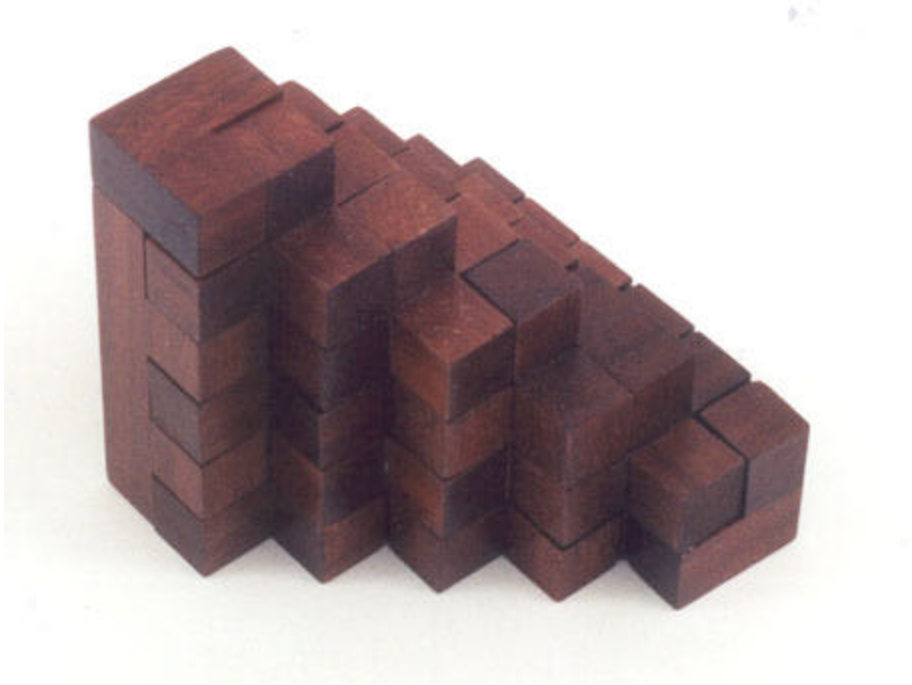
Puzzle Goal:

Construct the double stair

Materials:

cedar wood

Classification: Interlocking assembly



08

Sculpture Puzzle

Puzzle Goal:

Construct the abstract sculpture

Materials:

cedar wood

Classification: Interlocking assembly

09

Crystal Cube

Puzzle Goal:

For each challenge, all the pieces of rope must match with another piece of rope in the adjacent cubes. One objective in parts 3 and 4 is not possible!

1) Assemble a cube where the bottom four cubes are yellow cubes and the top four cubes are blue.

2) Assemble a cube that the color of neighboring cubes always alternates.

3) Assemble a cube with exactly four closed loops exist, and:

a) has the pattern of #1

b) has the pattern of #2

4) Assemble a cube with only one closed loop, and:

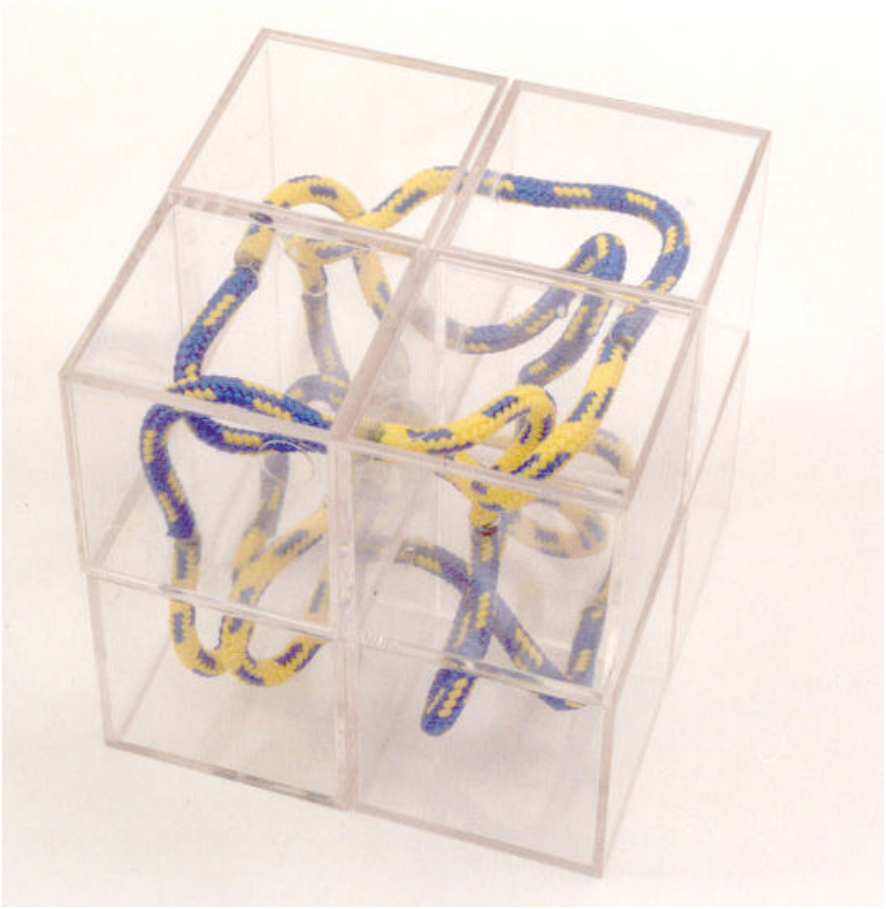
a) has the pattern of #1

b) has the pattern of #2

Materials:

Plastic cubes and rope

Classification: Put Together



10

Dipole Dilemma

Puzzle Goal:

Take the supplied 28 magnetic spheres and place them in the center tray so they lie completely flat. The plastic cover may not be used to keep the magnets in position as part of a solution. There are two unique solutions.

Materials:

Cherry and Walnut wood;

Gold-plated neodymium magnets;

Plastic case

Classification: Packing/Dexterity

11

Gizmo Gears QED

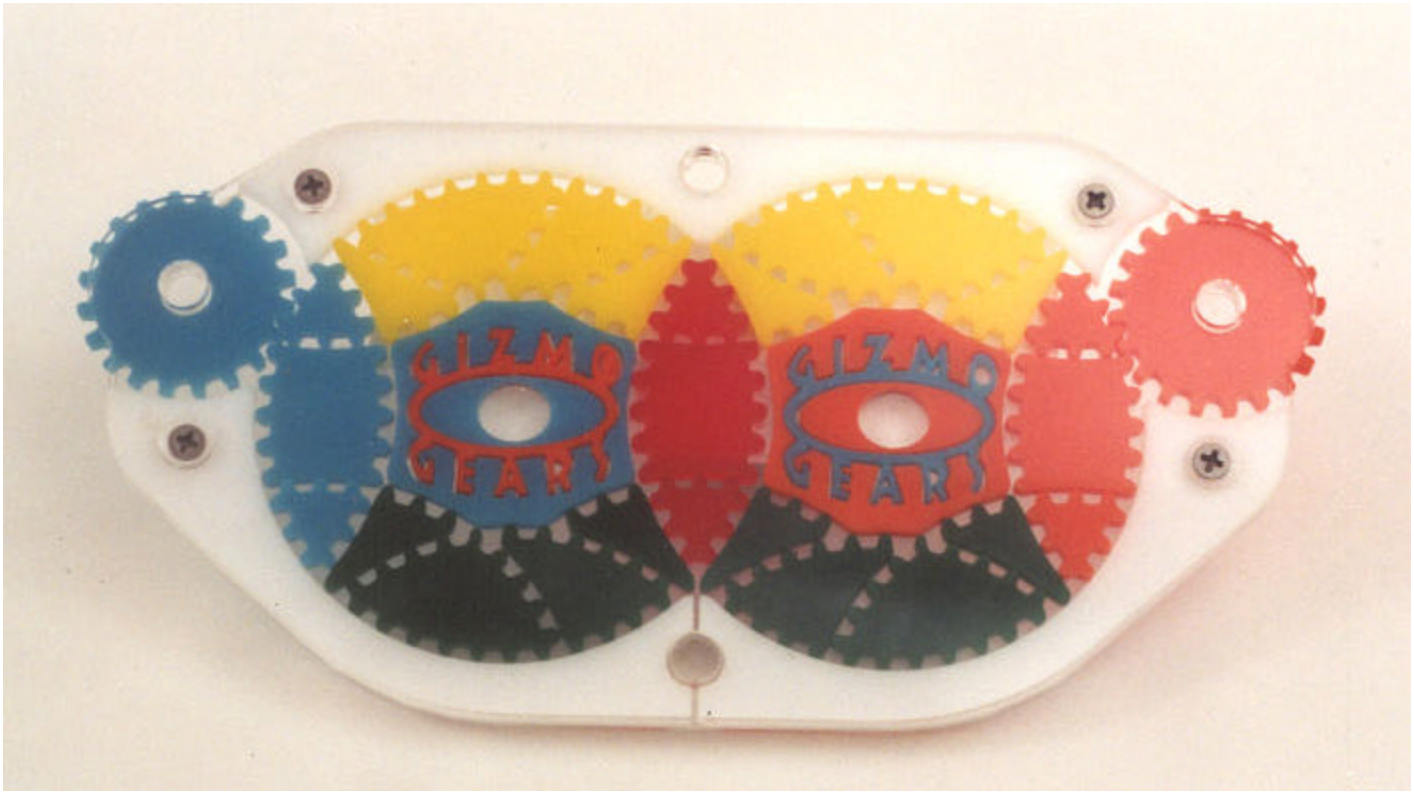
Puzzle Goal:

Mix up the pieces, then try to get back to the unmixed or starting configuration

Materials:

Acrylic plastic, in various colors, and stainless steel screws

Classification: sequential movement



12

Flip Side

Puzzle Goal:

Change the face picture from Dog to Cat and then Cat to Dog.

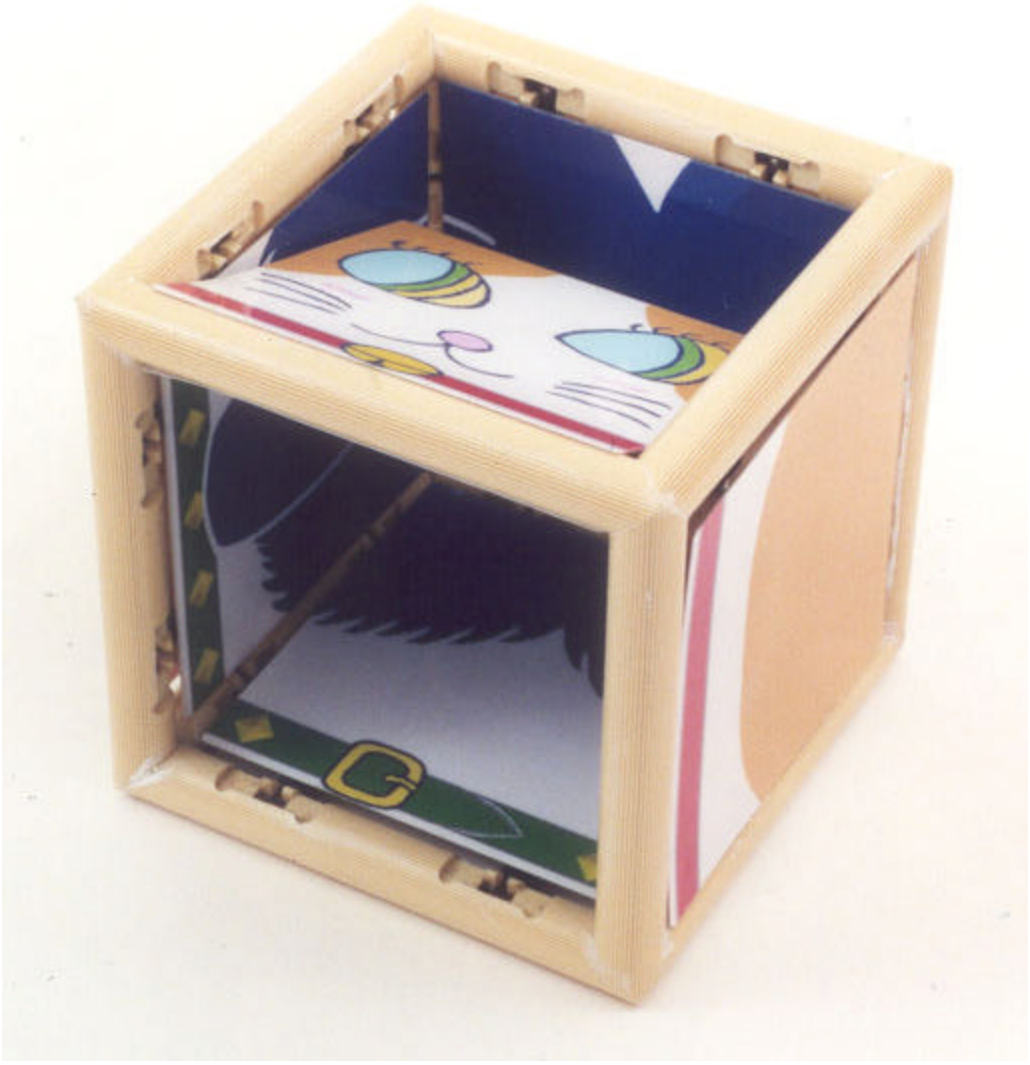
Materials:

ABS, MDFboard

Classification: Moving Side Puzzle

Notes:

Please be careful of the delicate mechanism.



13

EXPLORE

Puzzle Goal:

Place the blocks so that red squares on the board are covered by the blocks and the red squares of the blocks face upward (there are multiple ways of doing this).

Blocks are then moved by "rolling" them edgewise to empty, adjacent squares of the board (a new color of square will then be face up on the block, and that block will be covering completely new squares of the board). After a move, the blocks must be completely contained within the board's boundaries (no part of a block may hang over the edge of the 7x7 board).

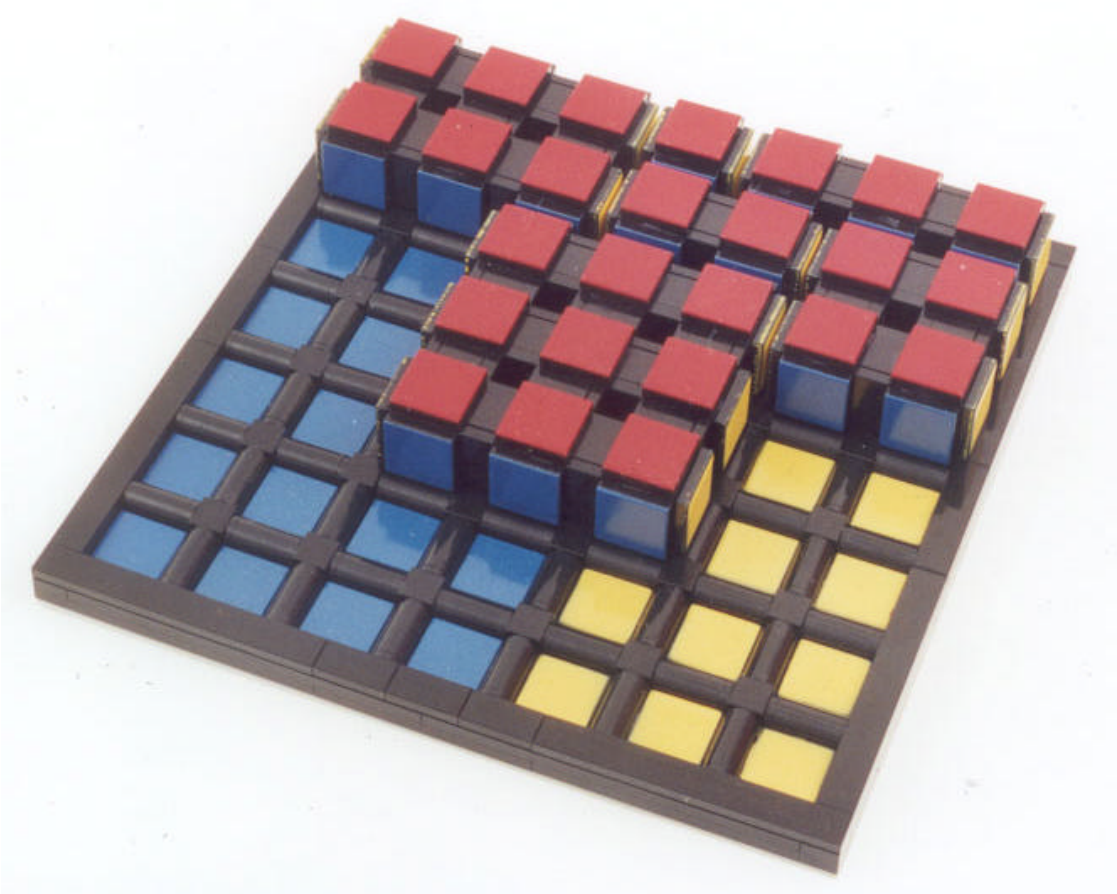
The final goal is to maneuver the blocks so that all of the yellow squares of the board are covered and, at that point, all of the blocks show yellow squares face up. Before reaching the final goal, however, one must first reach an arrangement ("interim goal") that covers all of the blue squares of the board with the blocks all showing blue squares upward. The goal is to accomplish the final goal in as few moves as possible.

Note that after intermediate moves (between "start", "interim", and "final goal"), face-up squares on blocks need *not* color-match the squares of the board they are covering -- this is only a requirement at the start, interim and final goal stages.

Materials:

ABS plastic

Classification: Rolling Block/Maze



14 Mace

Puzzle Goal:

Determine how the object was made. No glue was used in any part of the puzzle.

Materials:

Boxwood nails and Walnut rings

Classification: Impossible object

15

Janus

Puzzle Goal:

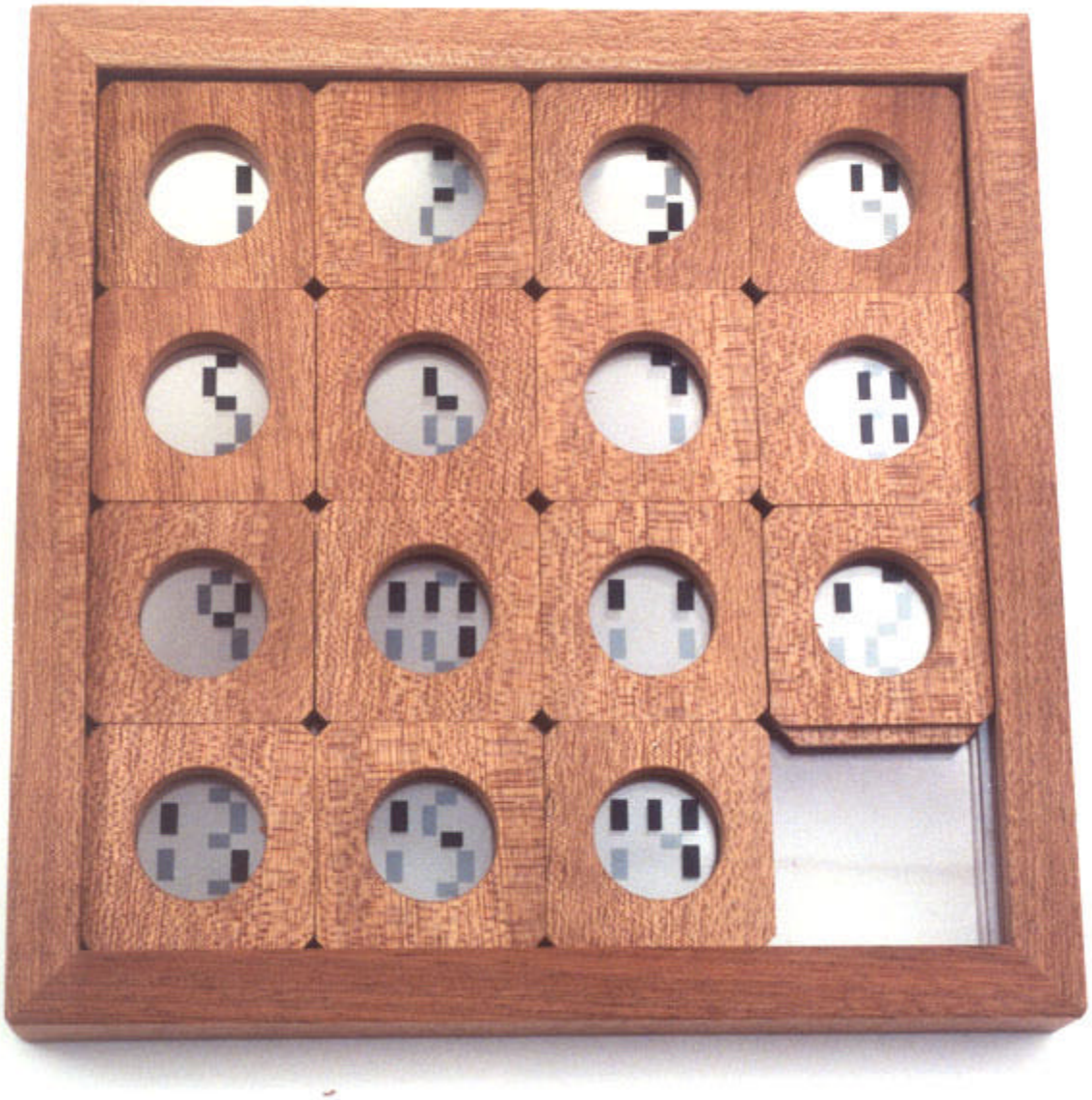
A -Arrange the two-sided sliding block puzzle so that the numbers 1-15 are shown in the correct places.

B – Arrange the two-sided sliding block so that 1-15 are displayed, but with the 14 and 15 reversed (Starting position)

Materials:

Wood and acetate

Classification: Sliding block



16

Cubigami

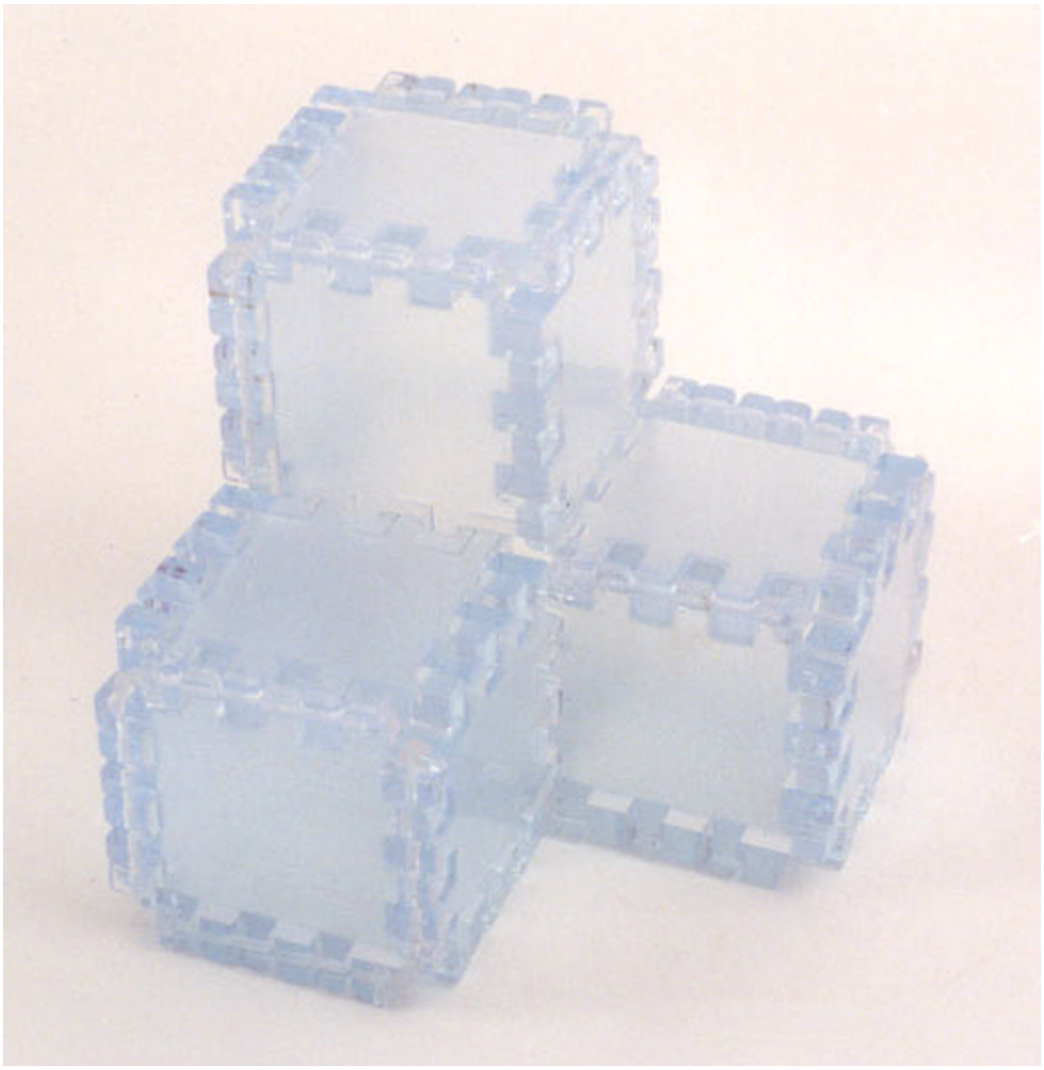
Puzzle Goal:

Fold the net into all seven tetracubes. (The eighth tetracube, the "O", has only 16 sides and can be made only with a paper-thin net).

Materials:

Acrylic

Classification: 1.3 – Miscellaneous Put-Together puzzle



17

Turkey Tetracube Teasers

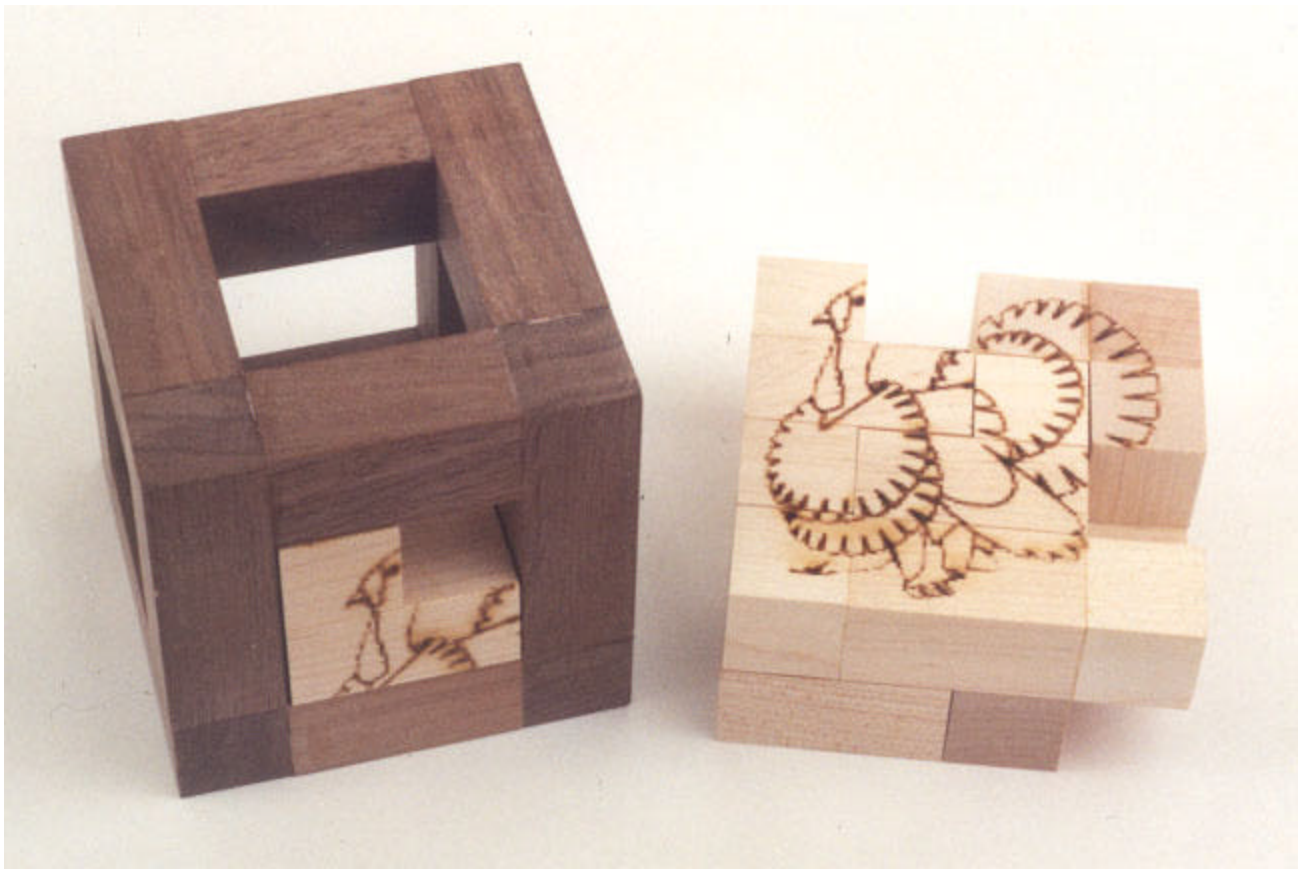
Puzzle Goal:

1) **Place the eight tetracubes to make a "jigsaw" turkey picture.**
2) **Form the eight tetracubes into a 2x2x8 tower.**
3) **Form the eight tetracubes into a rectangular block so that NO turkey-part pictures show on any surface.**
4) **Place the eight tetracubes into the frame.**
5) **Start with the empty frame in its plastic container; place the eight tetracubes into the frame, only working through the top hole.**

Materials:

Walnut and maple

Classification: 3D Assembly

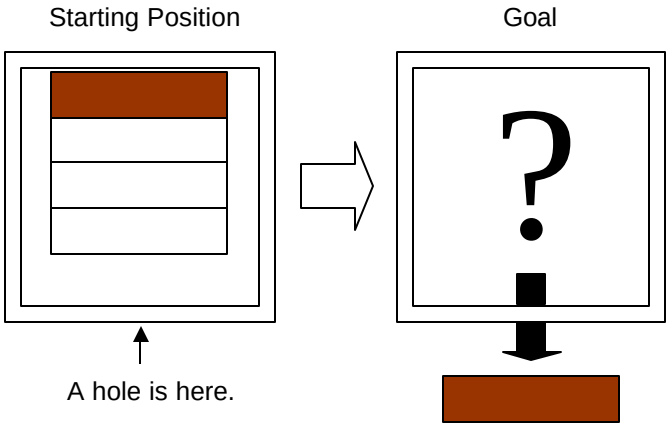


18

Rectangular Jam

Puzzle Goal:

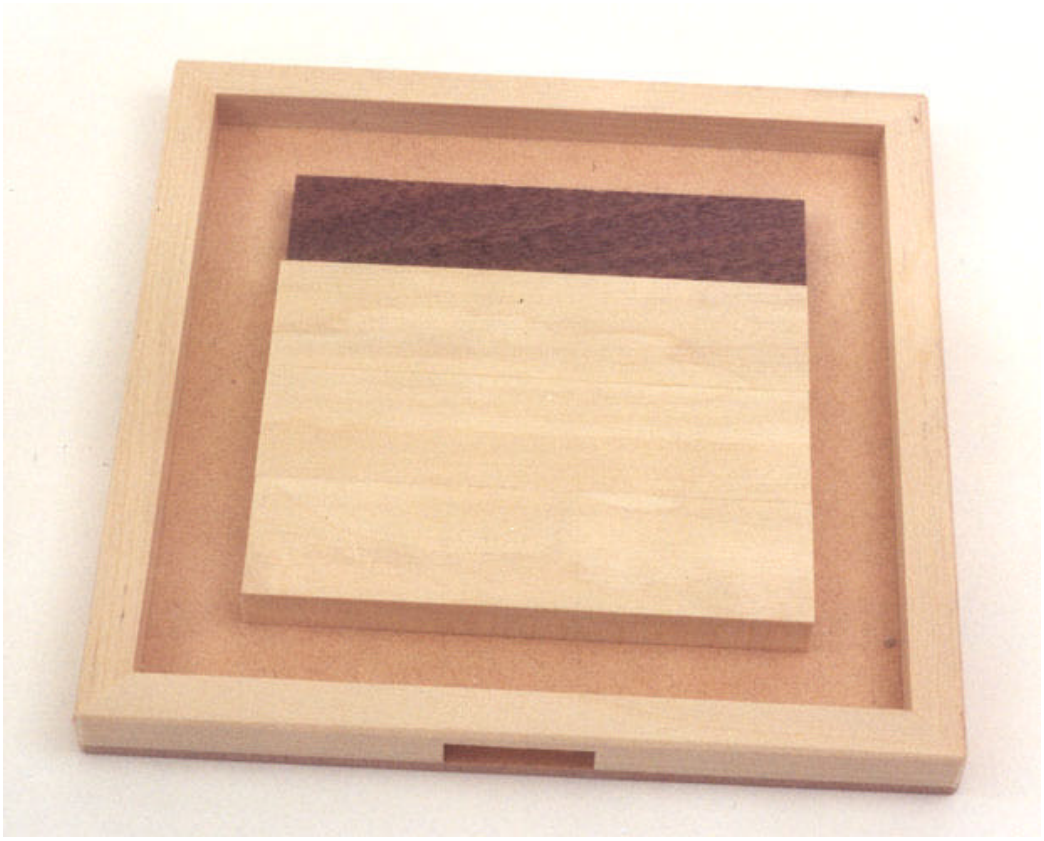
Slip the brown piece through the hole in the front of the frame (only the brown piece can go through).



Materials:

Wood and MDF

Classification: Sequential Movement



19

Caged Pyramid

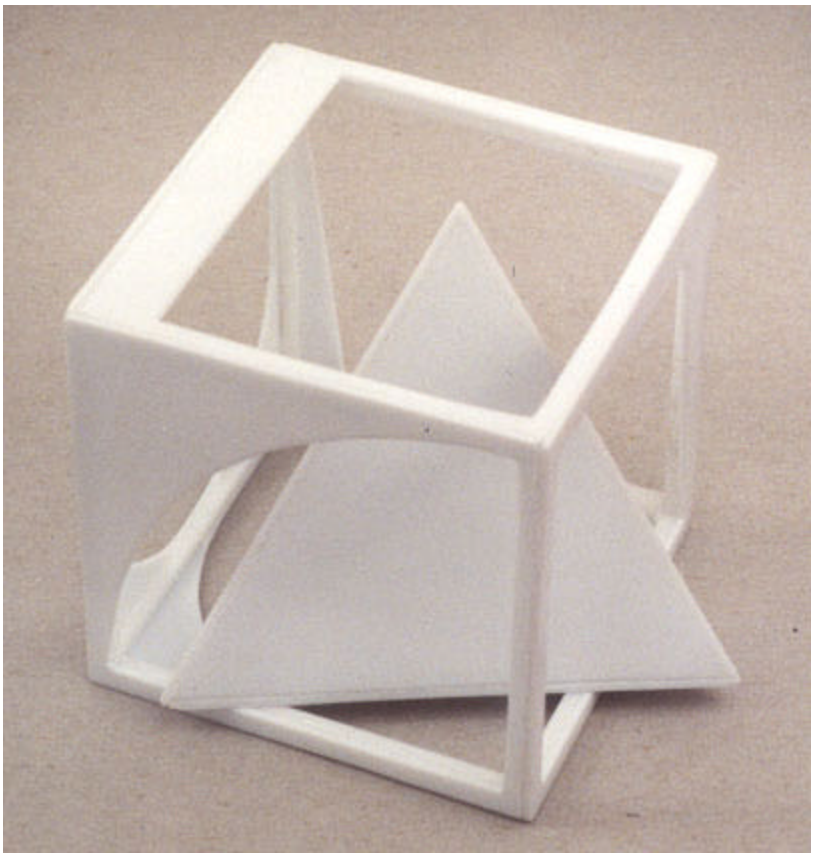
Puzzle Goal:

Remove the pyramid (regular tetrahedron) from the cage.

Materials:

Polystyrene

Classification: Take-Apart



20

Memory Drawers

Puzzle Goal:

Discover the pattern for opening and closing the drawers.

Careful: you need to open and close the drawers perfectly.

Materials:

Walnut, maple, silky oak, birch, rosewood, acryl

Classification: Sequential movement

21

Chinese Fang

Puzzle Goal:

Disassemble and reassemble the structure.

Materials:

Walnut

Classification: Burr Puzzle

22 Egg Fool Young (and Old) Puzzle

Puzzle Goal:

Can you make the egg stand on its end?

Materials:

wood and metal

Classification: Dexterity

Notes:

This appears similar to the Columbus Egg, but the internal mechanism is a new design.

23

FramEst 36

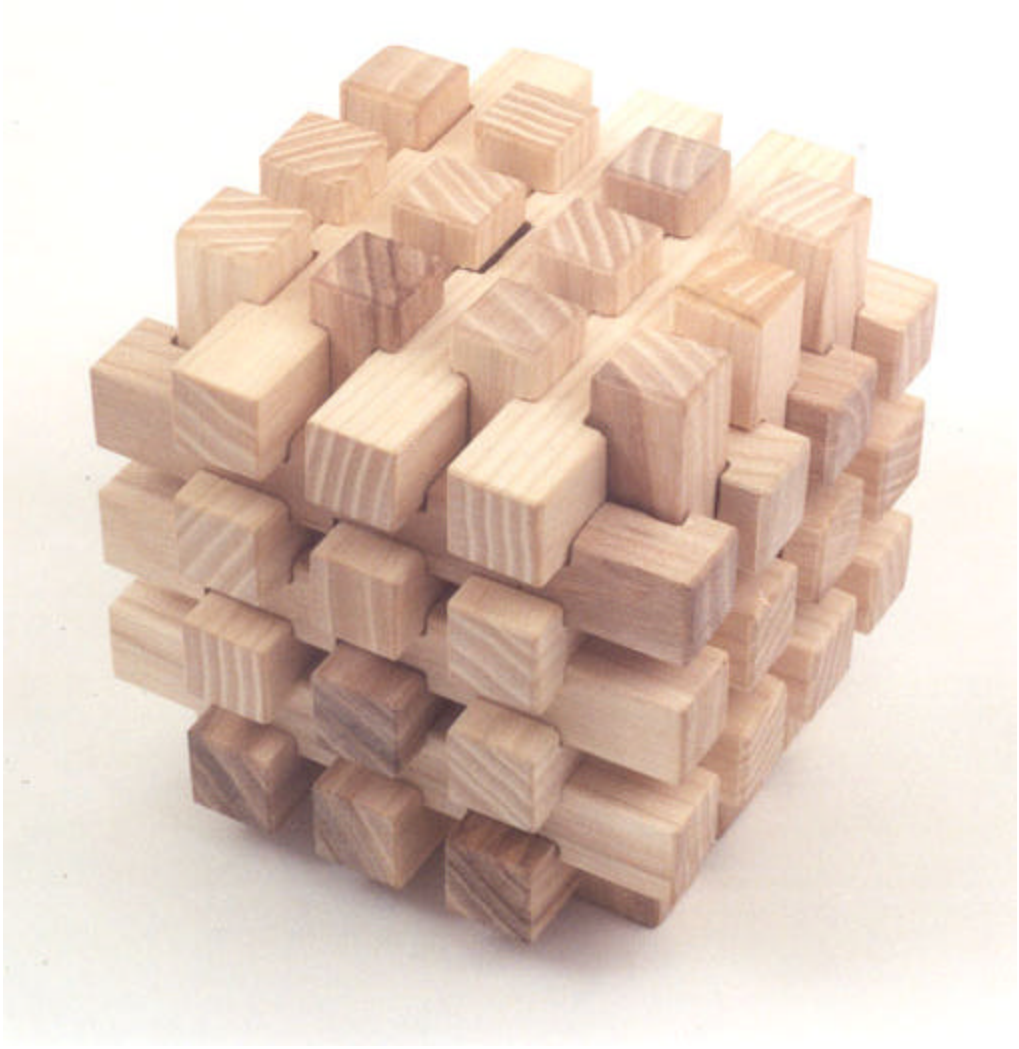
Puzzle Goal:

Disassemble and reassemble

Materials:

Ash tree

Classification: Burr Puzzle



24

Comerio

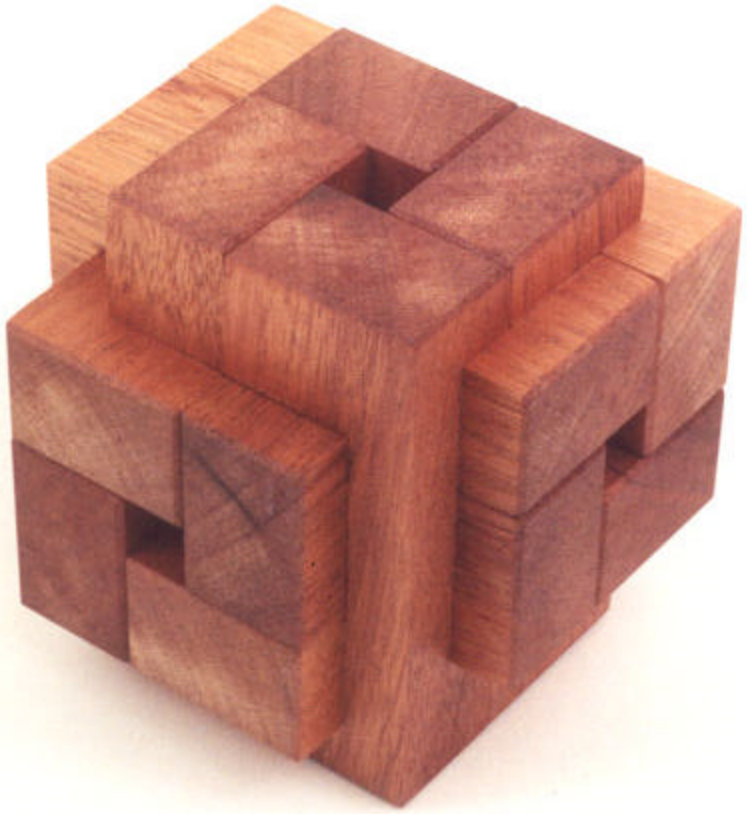
Puzzle Goal:

Disassemble and reassemble

Materials:

African Mahogany

Classification: Interlocking



25

Ying-Yang

Puzzle Goal:

Open the ball and try to disassemble the six piece burr inside. Then rearrange the pieces and close the ball.

Materials:

Ball made from ash-tree; pieces inside made from beech; Ying and Yang made from maple and amarand.

Classification: Burr, take-apart

26

Pattern Box

Puzzle Goal:

Open each end of the box

Materials:

Bubinga, Maple, Narra, Wenge hardwoods

Classification: Take apart

27

Cubes & Ladders

Puzzle Goal:

The Cubes & Ladders puzzle represents a pueblo with various houses (cubes) and ladders which allow you to climb the various levels of the pueblo. The goal is to select 16 of the 30 pieces and arrange them so that there is a continuous path from the lower left to the top right.

You can only move from one platform to the next if there is a ladder between the platforms. You cannot move at the same level from one platform to the next when they are only touching at the corner.

There are 201 distinct paths connecting the lower left to the top right.

Given the 30 different pieces with 2 ladders each, there are 4377 ways to select 16 pieces that form one or more of those 201 possible solution paths.

The deck of cards contains 23 challenges, using a selection of the above 4377 sets of pieces.

Materials:

Red Alder wood for the board and pieces, and cherry wood for the box. Card printing stock for the cards.

Classification: Route Finding

28

Arc Angles

Puzzle Goal:

1. Assemble 5 arcs into a ring so the lines match on all edges and form a closed loop.

2. Assemble the 25 arcs into 5 rings so all the lines match.

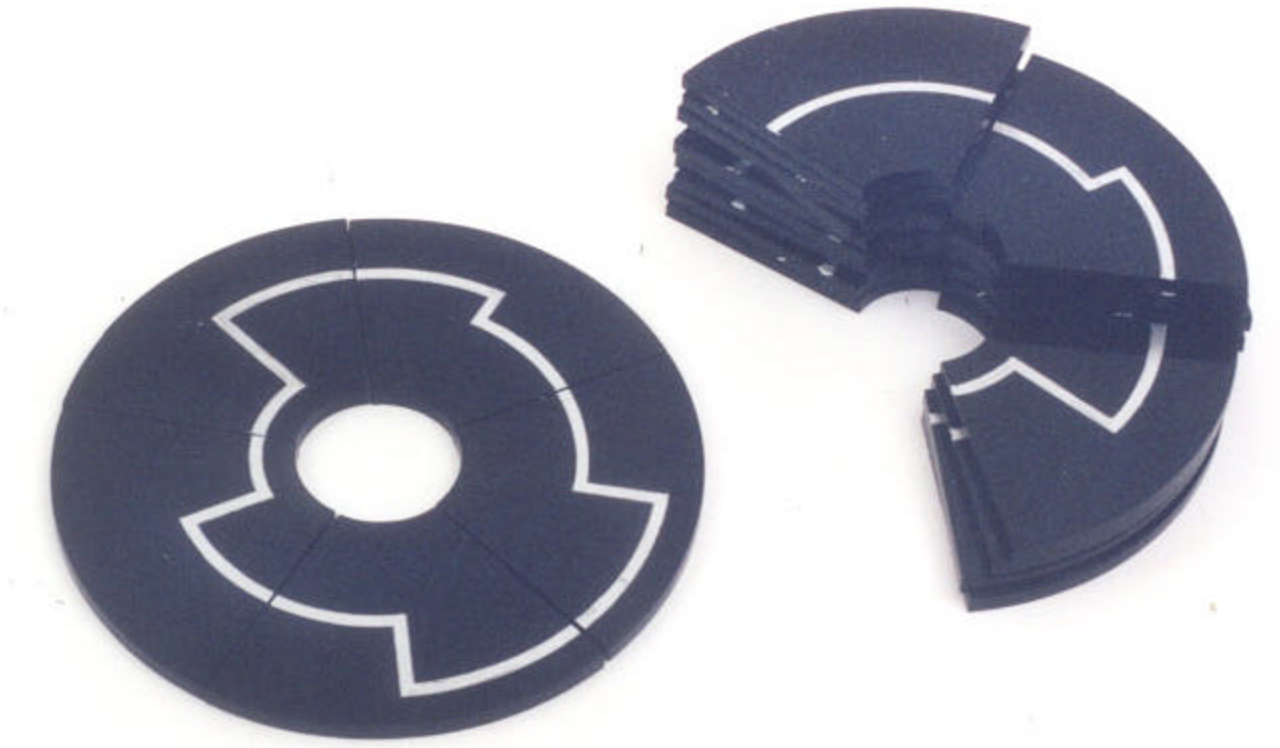
3. Assemble 15 arcs into a closed figure with lines forming a single matched loop. Note that the arcs may join on left or right edges to wind around in snake-like fashion. All lines must be joined – no loose or mismatched edges. Make two matched rings with the remaining 10 arcs.

4. Join all 25 arcs into one large closed figure with all 25 lines matching in a single loop. How many such shapes can you find?

Materials:

Black lasercut acrylic with sliver paths

Classification: path-forming put-together



29 Bollixed Briefcase Puzzle

Puzzle Goal:

Open the box.

No undue force is necessary.

Materials:

Aluminum case, steel balls, cocobolo slide, and Baltic birch plywood frame, and veneer lining.

Classification: Secret Opening Box

30 8 CYLINDER FULL HOUSE

Puzzle Goal:

Find a path that visits each light square exactly once. Your path cannot cross itself or enter a black square or the top or bottom of the cylinder; AND once a direction is chosen you cannot turn unless forced to by earlier rules.

Start by choosing a white square. Loop the string over the nail in your starting square and choose a direction. Now you are on your own! Good luck!

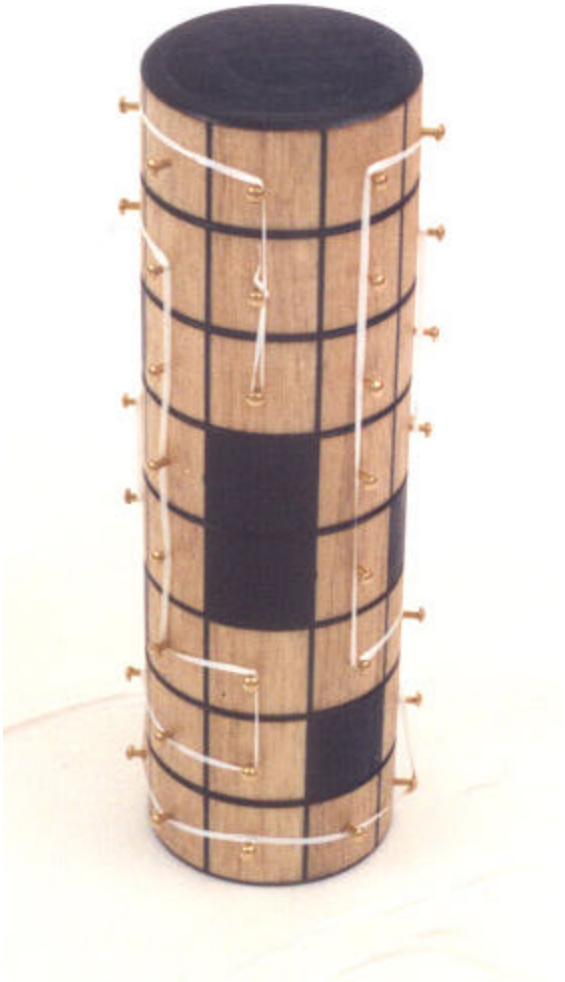
Materials:

wood, brass, and string

Classification: sequential move puzzle

History:

The special rule, about turns, is due to Erich Friedman, who coined the term “Full House” Puzzles. Erich used square or hexagon grids in the plane for his “Full House” Puzzles. This puzzle wraps an 8 x 8 square onto a cylinder. Therefore, the name 8-CYLINDER FULL HOUSE.



31 QUADS AND RODS

Puzzle Goal:

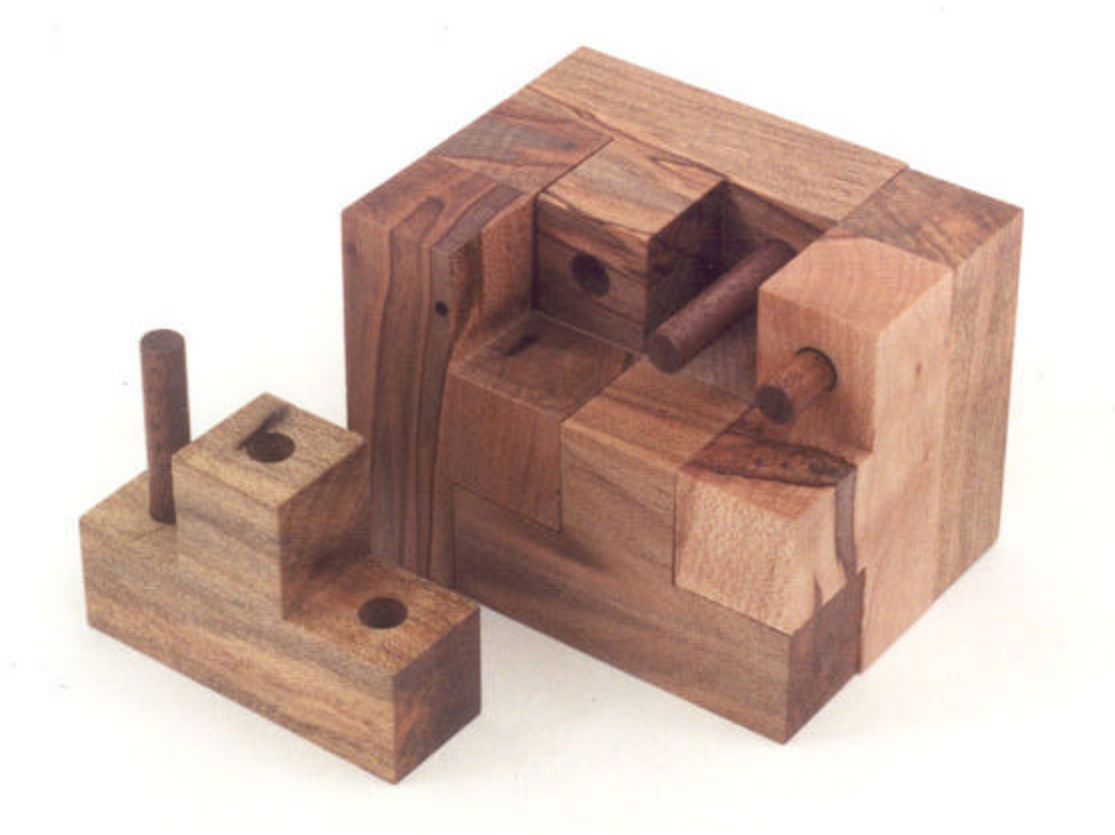
Build a 3 x 3 x 4 brick

Materials:

Classification: 3D Assembly

Notes:

Each piece has one or more rods fastened to it, as well as several holes. When assembled, each unit cube of the 3 x 3 x 4 brick will have exactly one rod through it. The rods are slightly shorter than 3 units so that no holes or rods are visible on the assembled brick.



32 Hide the Animal!

Puzzle Goal:

1: Chose a problem sheet illustrated with animals and set it in the tray.

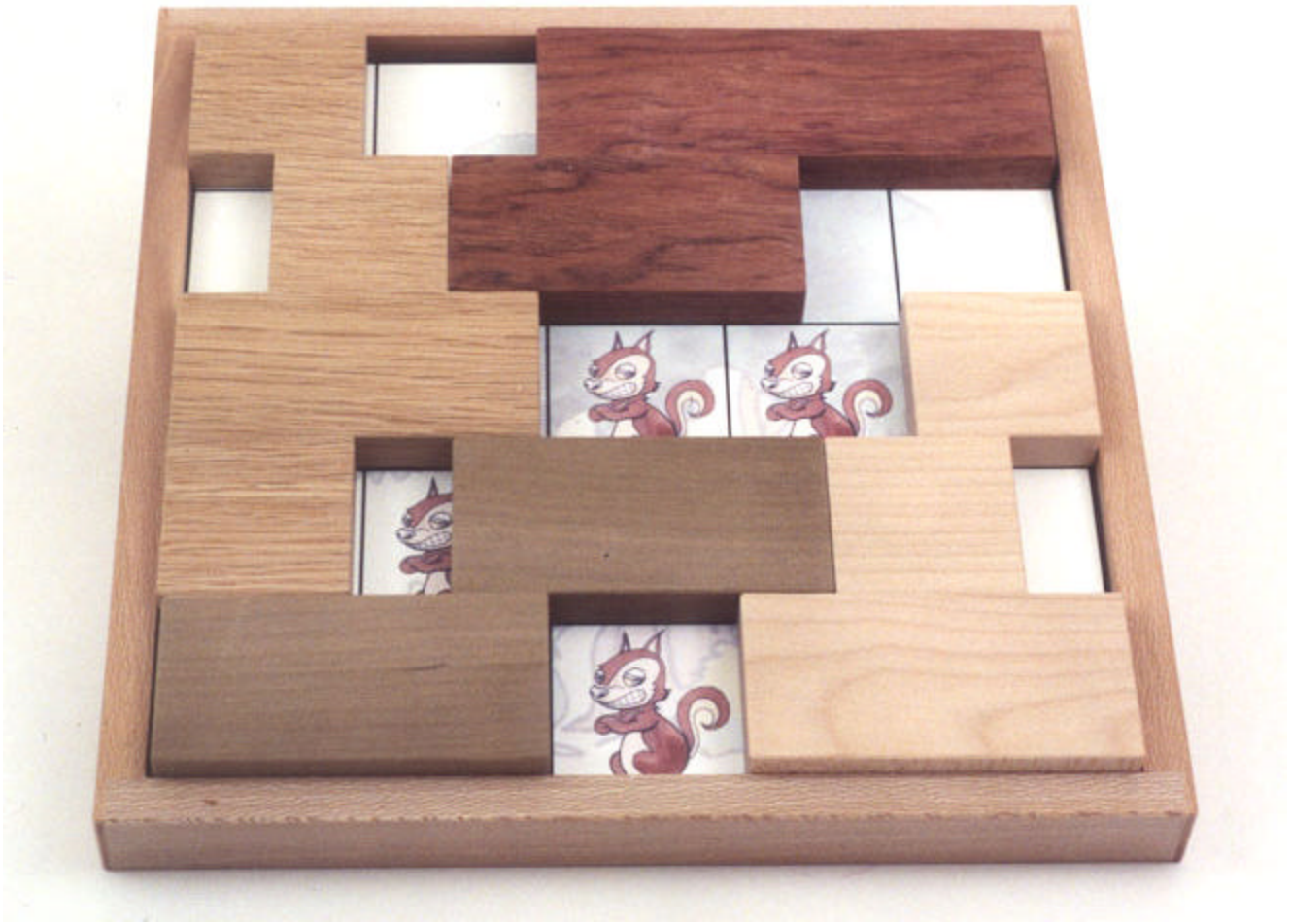
2: Pack the four pieces in the tray to hide all illustrated animals.

Problem no.1, 2 (Squirrel)	**Easy**
Problem no.3-5 (Sheep)	**Normal**
Problem no.6-8 (Horse)	**Hard**
Problem no.9, 10 (Tiger)	**Special or Tricky**

Materials:

Case: sycamore and plywood; Pieces: magnolia, maple, bubinga and oak

Classification: Put-together (2D)



33

DoDo

Puzzle Goal:

Disassemble and reassemble the interlocking puzzle

Materials:

Imbuya (South American Walnut), glue, lacquer

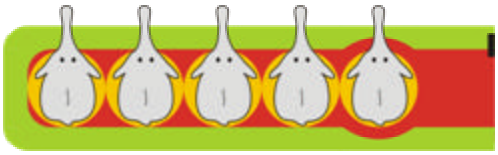
Classification: Interlocking with sequential movement

34 Crazy Elephant Dance

Puzzle Goal:

Move the slide with the attached elephants out of the tray.

Start:

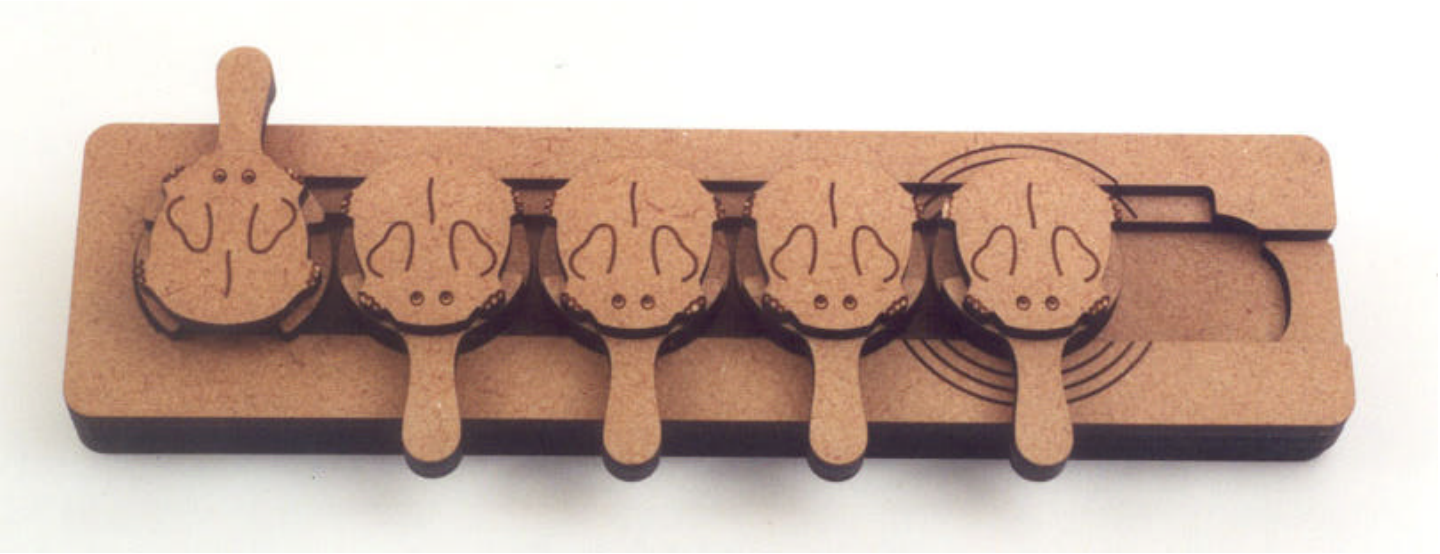


End:

Materials:

Wood (MDF)

Classification: Sequential Movement



35 Edge-Corner-Cube II

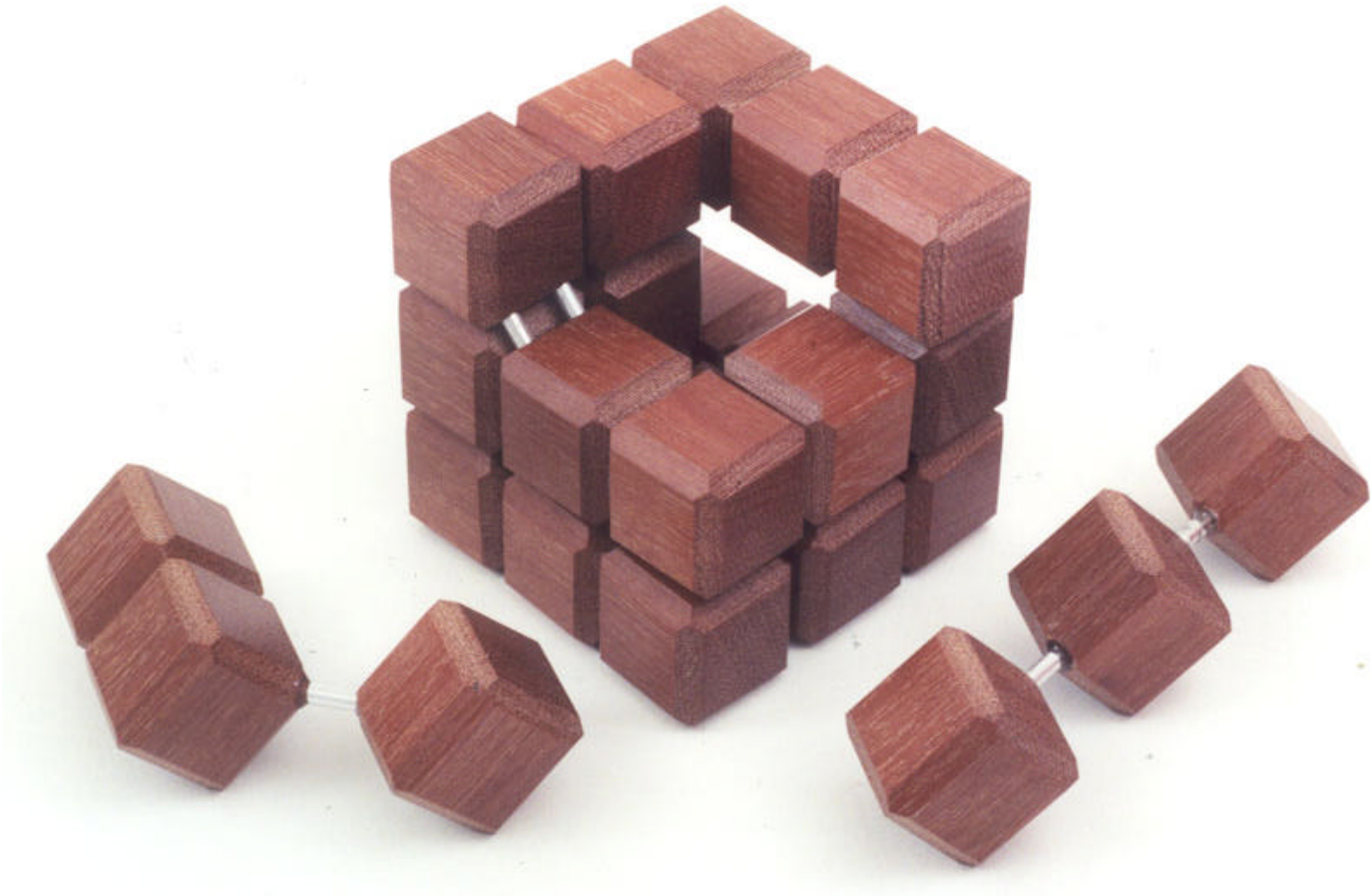
Puzzle Goal:

Assemble the 7 pieces to a 3x3x3 cube

Materials:

wood (Massaranduba), metal

Classification: Interlocking



36 7 Piece Nightmare

Puzzle Goal:

Put the pieces inside the tray. Don't try to make it out first--you will spoil the fun!!

Materials:

Black walnut, hard maple

Classification: Sequential Packing

37

Crossknot

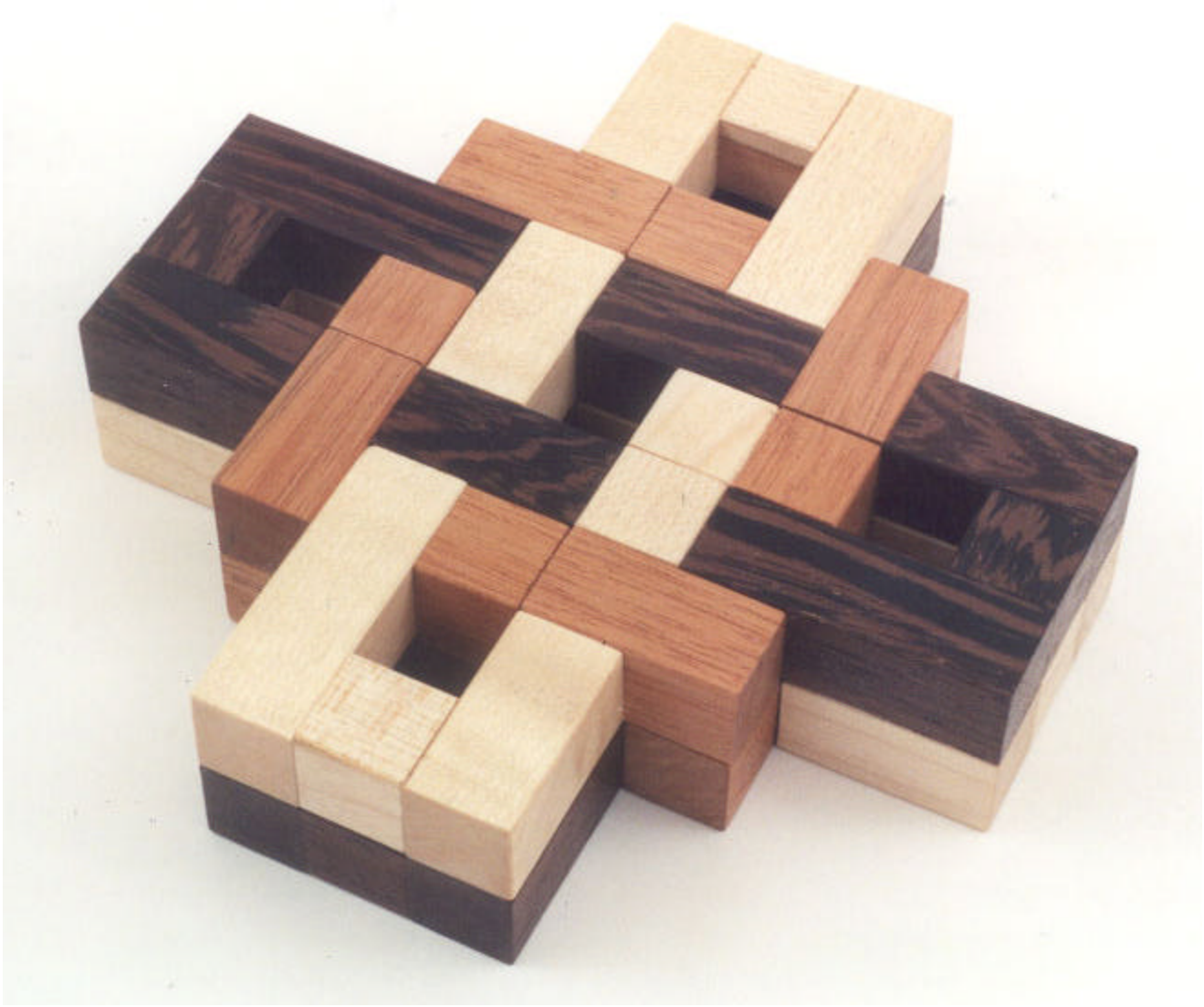
Puzzle Goal:

Place the pieces in such a way to interlock and form a cross.

Materials:

Wenge, hard maple, mahogany sappeli

Classification: 2D Interlock



38

Olympic Cube No6a

Puzzle Goal:

Move the individual layers of the 6x6x6 cube, so every side of the puzzle has the same color.

Materials:

ABS Plastic

Classification: Sequential Movement

39 Sleazier

Puzzle Goal:

Place all four pieces flat in the tray.

Materials:

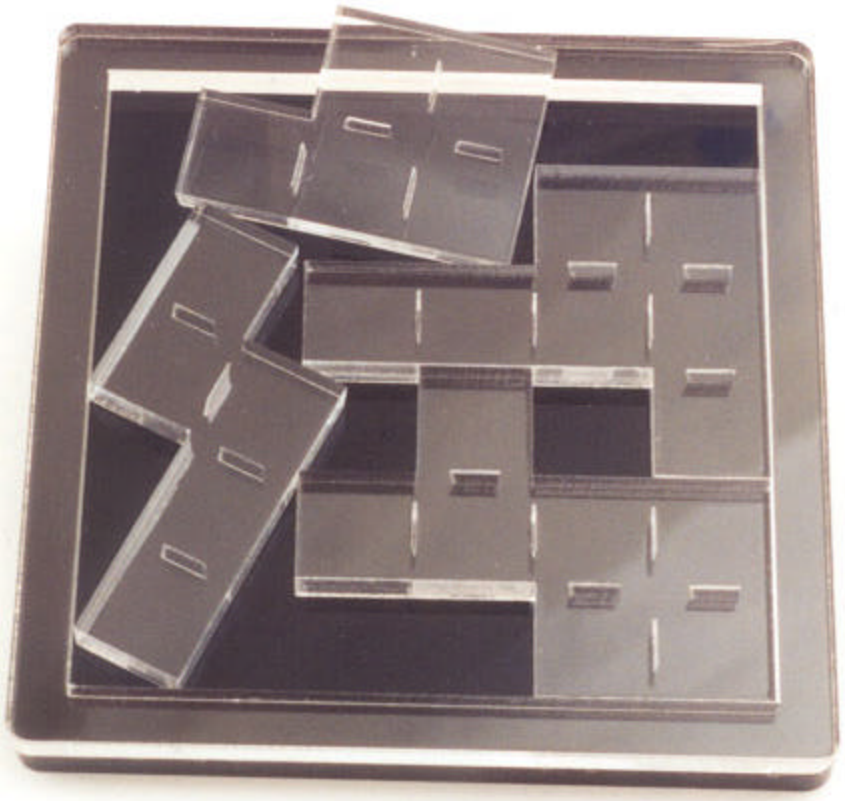
Plastic

Classification: 2-D Put Together

Notes:

History:

The inspiration for the puzzle came while failing to solve “Four Sleazy Pieces,” by Stewart Coffin. This puzzle is even less “perfect” than that one, however; hence the name.



40

Homage to the Cube

Puzzle Goal:

The goal of the puzzle is to make a pattern of the tiles in which no tile is adjacent, along an edge, to a tile of the same color. Tiles may share the same color with a tile in a diagonal direction across an intersection of tiles.

Materials:

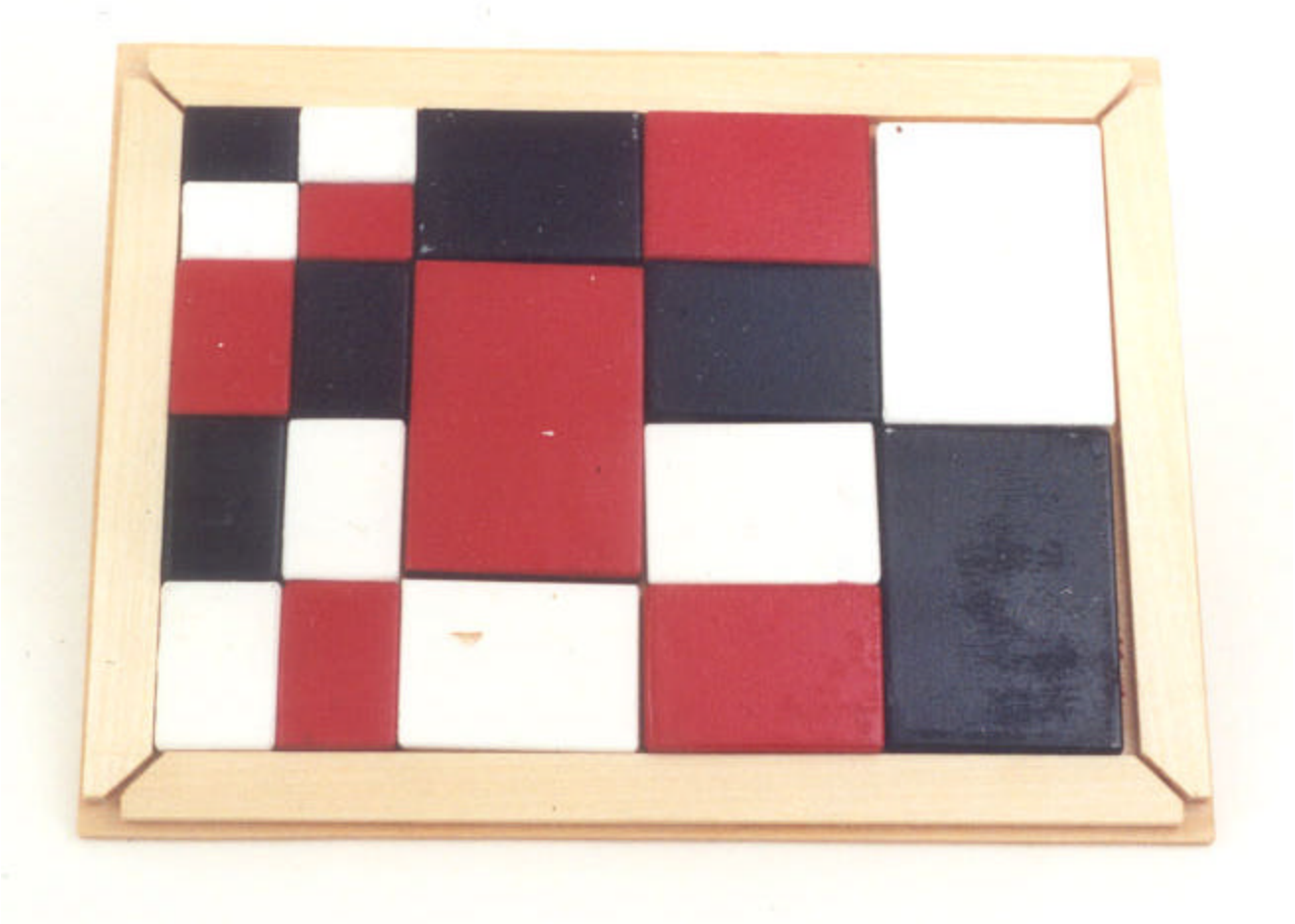
basswood with a finish of enamel

Classification: Two-dimensional assembly

Notes:

The unusual feature of the tiles is that each increase in size is by a factor of two, so that each tile is half the area of the next larger tile. Nonetheless, the ratio of the length of the sides of all the tiles is the same: $\sqrt{2}$:1. This forces the tiles of each size to maintain either a horizontal or a vertical orientation in the pattern; a tile that is placed vertically will not fit horizontally, and vice versa.

History:



41

The Box of ZN

Puzzle Goal:

Manipulate the moveable pieces on the top of the puzzle box to open it. Once the lid is opened, there is a tricky "panel" that must also be removed.

Materials:

Keruing and Bubinga

Classification: Trick opening box

42 Solitary Confinement

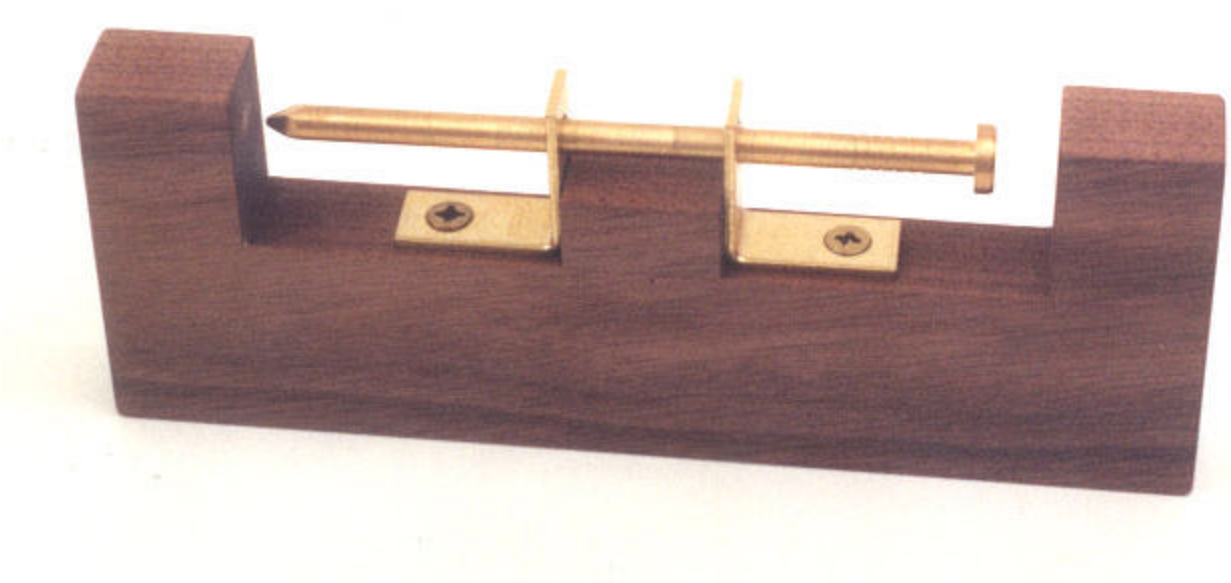
Puzzle Goal:

Free the nail from its constraints.

Materials:

Brass nail and walnut base

Classification: Take Apart



43 The Skeleton Key

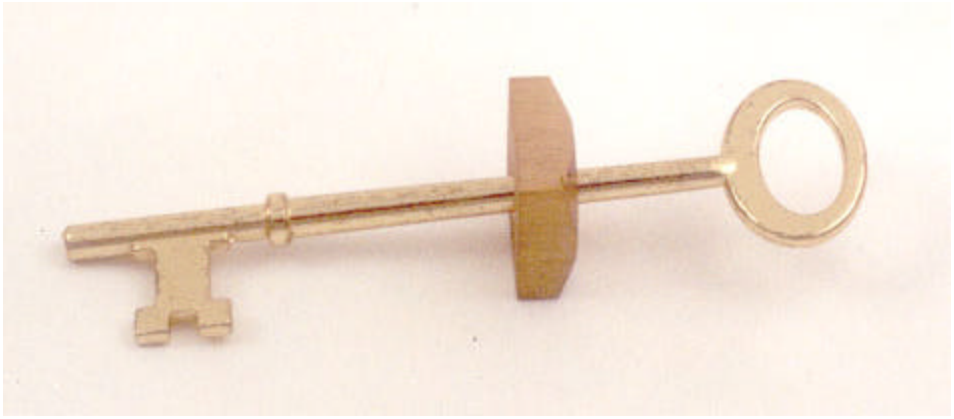
Puzzle Goal:

Remove the nut from the key

Materials:

Brass nut and key (the key is brass plated)

Classification: Take Apart



44

Stickman No. 5

Puzzle Goal:

Open the box through the sequential movement of its exterior pieces. After this, the next goal is to dismantle the box into its 78 individual pieces and reassemble it back into a working puzzlebox (it is recommended that only one panel be disassembled at a time).

Materials:

Walnut, Maple, Bloodwood & Cherry

Classification: Take Apart

45 Stickman No. 7

Puzzle Goal:

Remove all four drawers from their cage.

Materials:

Wenge & Maple

Classification: Take Apart

Notes:

The Stickman No 7 Puzzlebox is unique in that the movement of each drawer depends on the positions of adjoining drawers. The movement of adjoining drawers is also dependant on the positions of the drawers that neighbor them. Once completed, the individual drawers can be also reinserted back in hundreds of different ways (how many?), each producing their own unique series of moves and level of difficulty.

46

Gyro Brain

Puzzle Goal:

Disassemble and reassemble the cube.

Materials:

360 Machined Brass

Classification: Put-together Puzzle

History:

A prior design, Perplexity, was redesigned and sized to form an alternative "brain" for Berrocal's Hoplita.

47 Bricks Thru Window

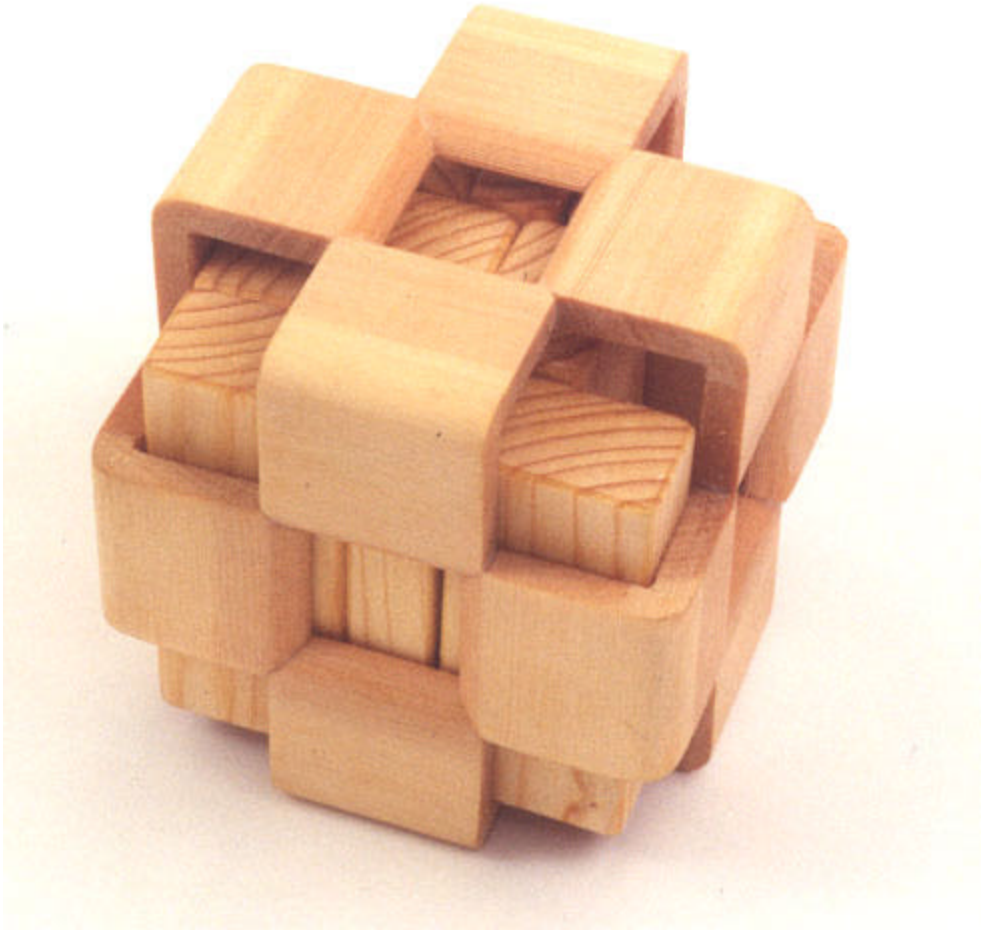
Puzzle Goal:

To take out cuboids from box, and then to replace cuboids within box.

Materials:

Pine

Classification: Box filling/ emptying



48 Living Quarters

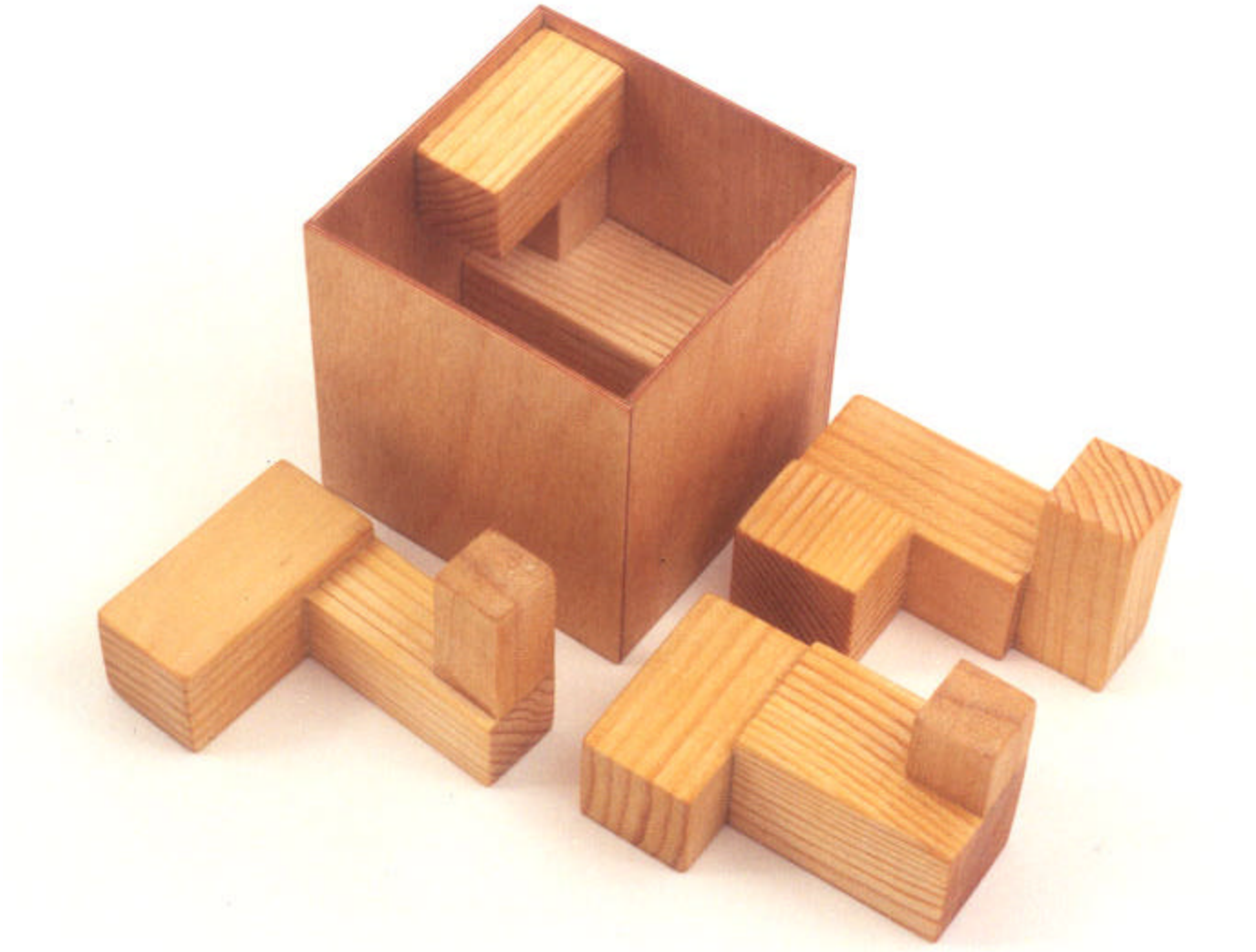
Puzzle Goal:

Fit the three shapes into box and replace lid

Materials:

Pine and marine board

Classification: Box emptying/box filling



49

Triple Trouble

Puzzle Goal:

Insert the blocks into the box.

No significant force is necessary.

Materials:

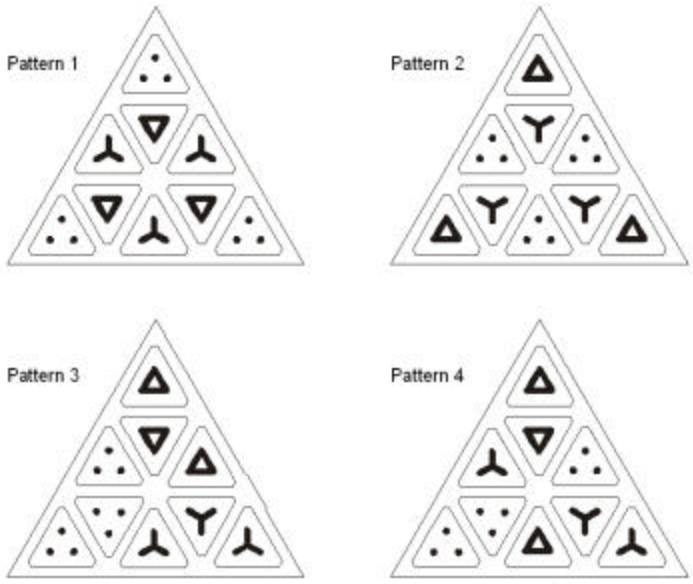
Wood (cherry/bubinga or maple/bubinga)

Classification: 3D Assembly

50 Necklace Packing Puzzle

Puzzle Goal:

Pack the nine triangle beads of this necklace in the tray to make the following patterns. The two chain parts can be loose and they have to be packed completely around the beads.



Materials:

aluminum "hylite" and acryllic beads, nylon string and nickel chain, packed with blue paper description in transparent jewel case

Classification: Put Together (Packing Problem)

51

Butterfly

Puzzle Goal:

From the starting position shown, without lifting the pieces from the tray, rearrange them to put the Swallowtail together. The shortest path requires 31 moves. Then, from that solution, continue rearranging the pieces until the Monarch emerges again. The shortest path this time is only 9 moves.

Materials:

paper, laminate, aspen, ebony, birch plywood

Classification: Sliding Block

52

W-O

Puzzle Goal:

Find four compartments

Materials:

Walnut, Rengas and Iron bolt

Classification: Take-Apart

53

Petit Heart

Puzzle Goal:

Open both halves of the heart

Materials:

lengas, mizuki

Classification: Take-Apart

54

Caged Knot

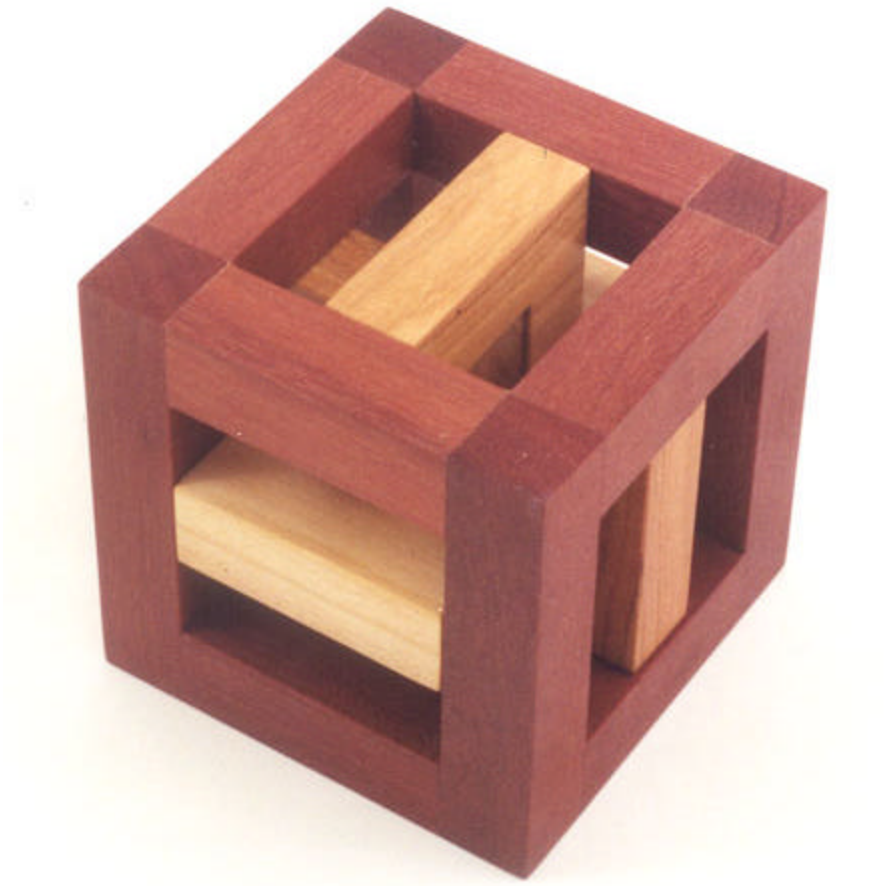
Puzzle Goal:

Take it apart (difficult) then put together (very difficult)

Materials:

Masaranduba wood (cage) and maple for the pieces

Classification: 3.2 Interlocking Geometric Object



55

Icosahedron92

Puzzle Goal:

Put together all pieces to form an icosahedral object

Materials:

cherry

Classification: Put Together Puzzle

56 Swan

Puzzle Goal:

Disassemble and reassemble the pieces

Materials:

Plastic – GPPS

Classification: 3D Puzzle

Notes:

This improves upon older Mag-Nif designs by introducing a non-symmetrical piece pattern and mechanisms for adding external pieces.

57

cuBBox

Puzzle Goal:

Pass the stick throughout the cube

Materials:

Solid wood and solid brass

Classification: Dexterity