

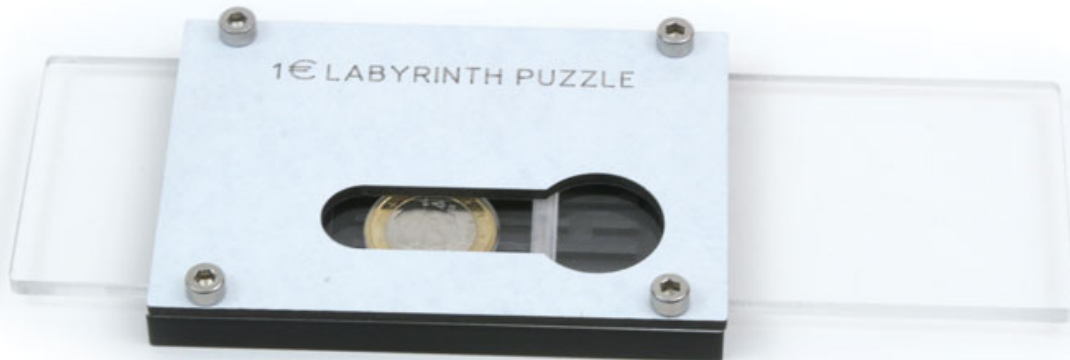
01

1€ Labyrinth Puzzle

Puzzle Goal: Remove the coin.

Materials: Trespa, Acrylic, steel balls

Classification: Routefinding puzzle



02

13 Triangles

Puzzle Goal: Place the 13 different triangles into the tray, using either an all-orthogonal or all-diagonal grid.

Materials: Alder, walnut

Classification: Put-together



03

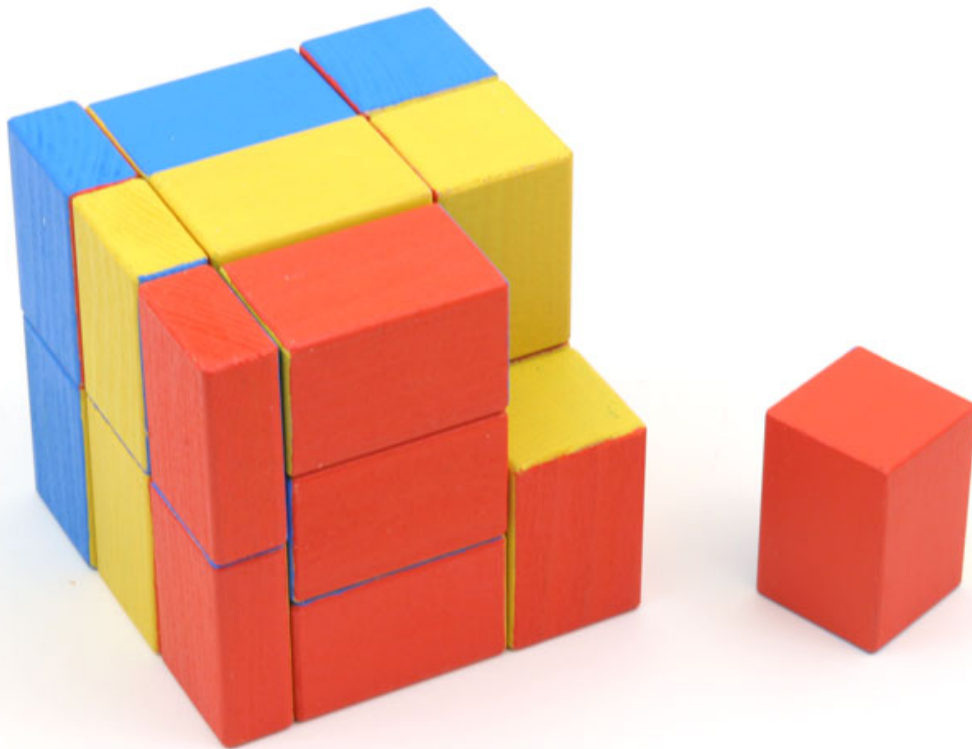
3 Color Cube

Puzzle Goal: **Make a red cube.**
 Make a yellow cube.
 Make a blue cube.

Materials: Wood - beech

Classification: Put together

Notes: The cube is dissected into 24 pieces, in a way that the total surface area is three times the surface of the cube; so it is possible to make 3 different colored cubes with the pieces. Other possible patterns are shown on the solution page.



Puzzle Goal:

- 1) Fit both types of pieces into the small box, (1/8 of the large box).
- 2) Put all nine pieces into the large box.
- 3) Put all nine pieces into the large box so that pieces meet face to face, edge to edge, and vertex to vertex, and there is no gap between pieces.

Materials:

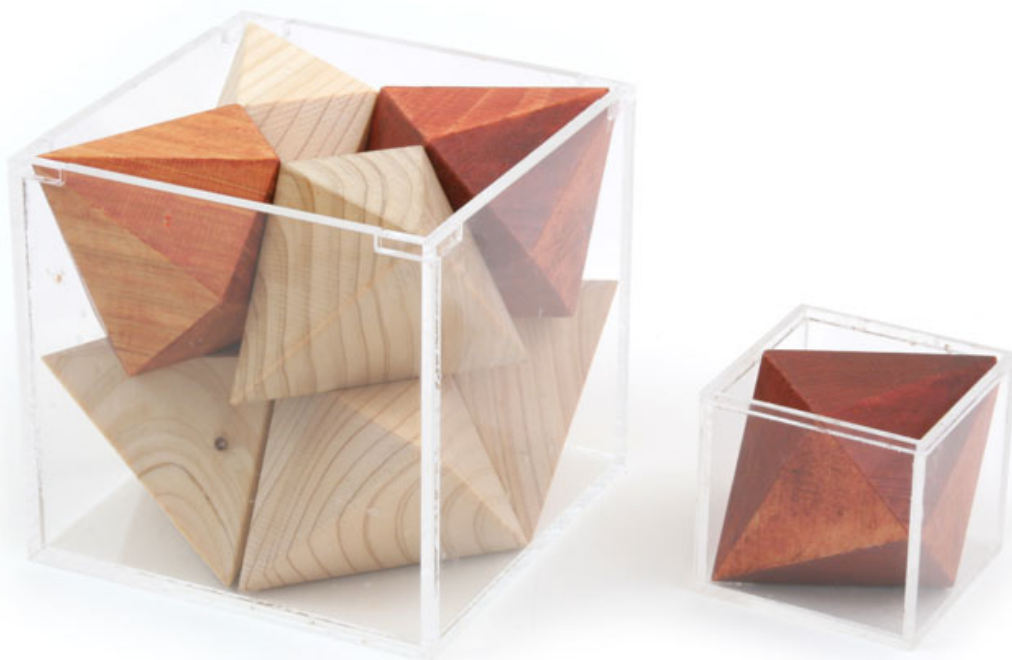
Wood (piece), acrylic (box)

Classification:

3D Assembly

Notes:

The two puzzle pieces H (Hexagonal Bipyramid) and T (Triangular Antiprismoid) are imaginary cubes, i.e., objects which have square projections in three orthogonal directions just as the cube. H and T also form a tiling of 3D space.



3-Layer Tetraaxis Array

Puzzle Goal: Use the set of 61 sticks and blocks to put together seven compositions that symmetrically surround a center:

- 1) Using one block and the 12 longest sticks
- 2) Using the 12 blocks and the 12 mid-length sticks
- 3) Using the 24 shortest sticks
- 4) Combine 1 & 2
- 5) Combine 1 & 3
- 6) Combine 2 & 3
- 7) Combine 1, 2 & 3

Materials: Wood, magnets and silicon bronze

Classification: Put-together



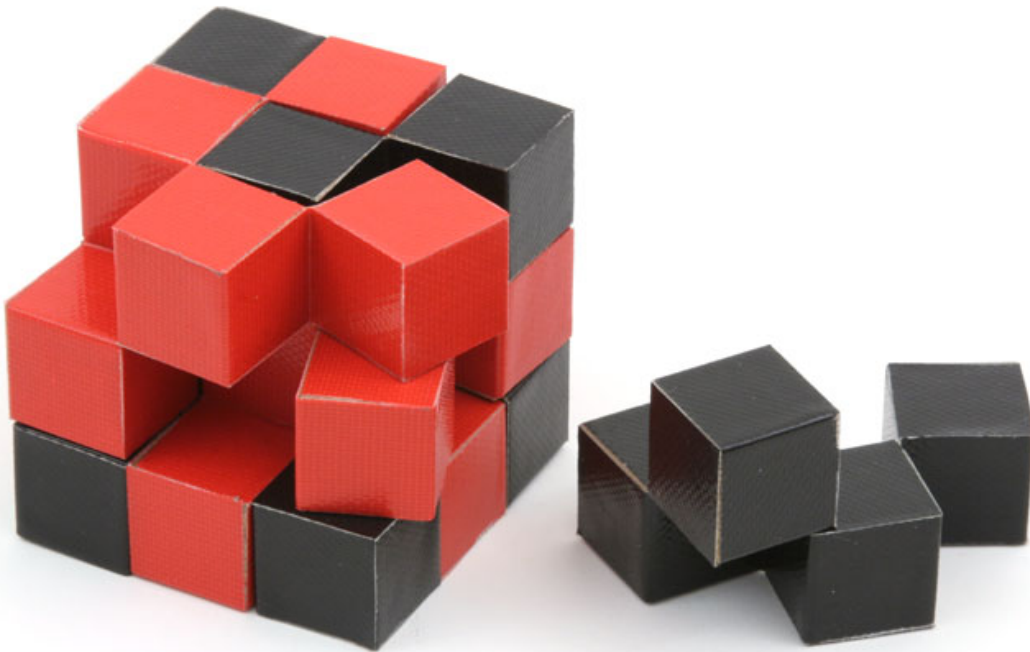
06

3x3x3 Cube with Chess Board Faces

Puzzle Goal: Assemble the six pieces using partial folding to build a 3x3x3 checkerboard cube.

Materials: 27 cubes MDF 19 mm, black and red adhesive tape

Classification: ASS-CART / FOL-HSEP



07

Arrow Blocks

Puzzle Goal: Starting from the position shown, restore the dark arrow, and leave space so that the light arrowhead may also be restored.

Materials: Box - Indian rosewood, pieces - maple, arrows: yellowheart and Brazilian blackwood

Classification: Sequential movement

Notes: The puzzle resembles Bill Cutler's *Slide-Blocked Sliding Block Puzzle*, but is a completely different concept.

Only when restarting the puzzle are you allowed to remove the cover of the frame and freely rearrange the pieces to the starting position (shown below, and with detail on solution page).



08

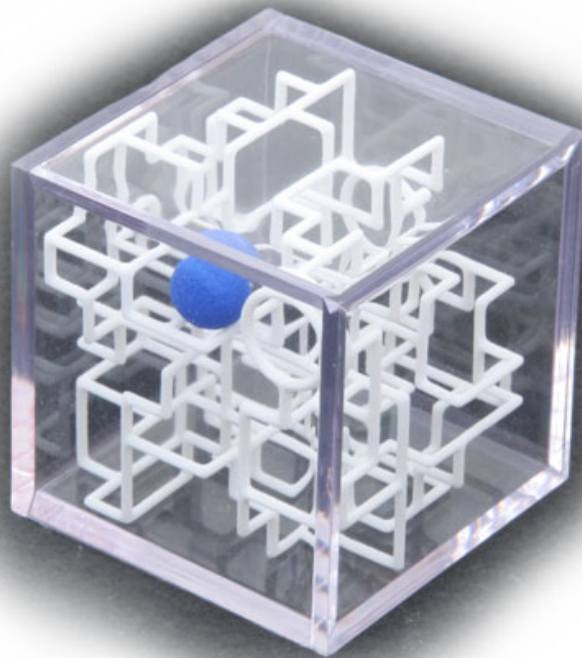
Bare Bones

Puzzle Goal: Navigate the maze ball from the starting position at the entrance ring to the treasure position at the goal ring, and then back again.

Materials: Laser sintered nylon, enamel paints

Classification: Maze and Route/Dexterity

Notes: Walls of a conventional 3D maze are replaced with rods. Many rods have been removed, and distracting rods added. A plastic case forms the outer walls so that the core of the maze becomes more visible.



09

Befuddling Butterfly

Puzzle Goal: Fit the 10 pieces into the tray. There are 231 different solutions.

Materials: Red alder and walnut

Classification: 1.1 2-Dimensional assembly puzzle



10

Blind Burr

Puzzle Goal: Disassemble and reassemble.

Materials: Bloodwood

Classification: Interlocking



11

Bloom

Puzzle Goal: Use the six petals to create a solid circle.

Materials: Walnut

Classification: Put-together



12

Bottle & Glass

Puzzle Goal: Separate the bottle from the glass.

Materials: Glass, rope, wooden beads , metal ring

Classification: Disentanglement



13

Bubbloid122

Puzzle Goal: After the puzzle is scrambled the goal is to restore each face of the puzzle to a single solid color.

Materials: 3D printed nylon, dyed black, screws, vinyl stickers

Classification: Twisty puzzle – Slocum category 4.5



14

BurrBlock

Puzzle Goal: **Part 1: Remove 4 key pieces (45 steps)**
Part 2: Disassembly frame (15 steps)

Materials: Walnut, maple and mahogany notched square sticks

Classification: Interlocking Solid Puzzle



15

Butterfly & Flowers

Puzzle Goal: Open the box.

Materials: Maple, cherry, walnut, and magnet

Classification: Trick opening



16

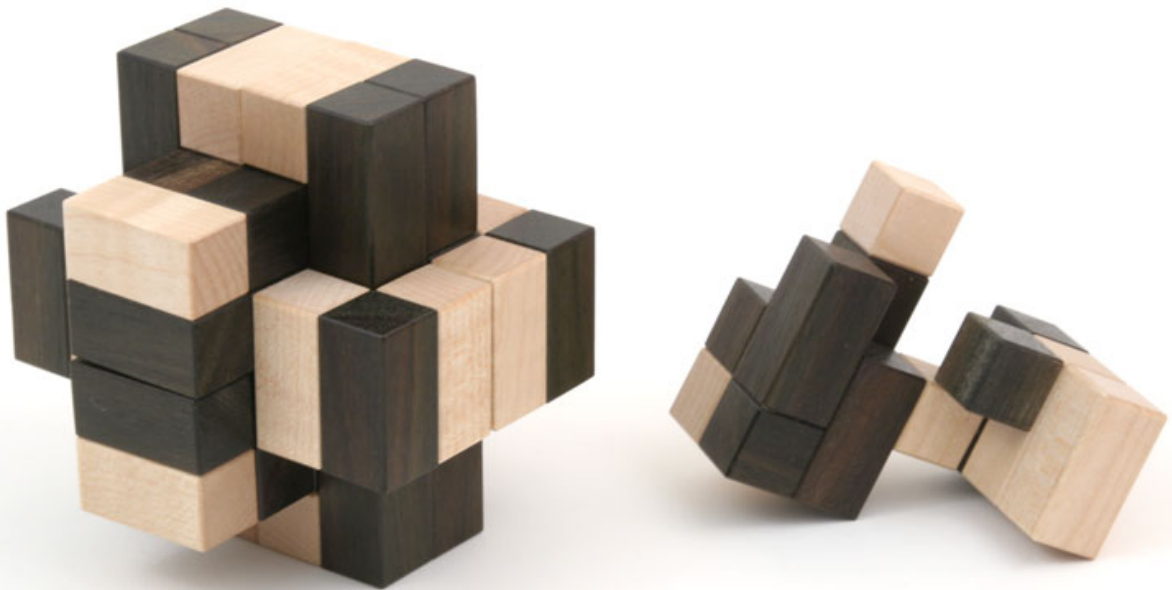
The "By George" Burr

Puzzle Goal: Disassemble and assemble six pieces to form a 6 piece burr-shaped puzzle.

Materials: East Indian rosewood and maple

Classification: Interlocking

Notes: Level 2.4.3.2.3 serially interlocking burr.



Caged Polycubes

Puzzle Goal: Fill the cage with the three tetracubes (R,S,T) and four pentacubes (either A,L,N,Q or F,J,L,P).

Materials: Wood

Classification: Put-together

Notes: Use the assembly jig to test out assemblies before trying to put them into the cage.

With the 17 non-planar pentacubes and 3 non-planar tetracubes, there are 110 piece combinations with 259 ways to fill the cage after removal of reflections and rotations.



18

Catch 22

Puzzle Goal: Open the box.

Materials: Argentine lignum vitae

Classification: Opening

Notes: After years of working with gravity pin designs, this is the result of what was initially considered a mistake, but was actually a great puzzle in disguise.



19

Chamfered Cube

Puzzle Goal: Use either set of 12 sticks to hold the 8 blocks in place at the corners of a cube. Add the other set of sticks to make a large chamfered cube, which is the shape of the small white block that can fit in the center of the arrangement.

Materials: Wood and magnets

Classification: Put-together



20

Chaplin

Puzzle Goal: Arrange the pieces to make a shape of a bowler hat.

Materials: Wood (bubinga)

Classification: Put-together puzzle



21

Clustered Anew

Puzzle Goal: Disassemble, then re-assemble the six pieces to form a cluster arrangement of six rhombic dodecahedrons.

Materials: Wood: jatoba and ziricote

Classification: Interlocking



COG-Cubed

Puzzle Goal: Build an interlocking shape using several sets of a simple 3-piece puzzle.

Materials: Laser-cut fiberboard

Classification: Interlocking

Notes: COG-Cubed is made from eight sets of the familiar COG 3-piece burr, properly oriented and arranged in a $2 \times 2 \times 2$ cubic array. The pieces are constructed in such a way that larger and more complex puzzles may be created.



Constrained Cube

Puzzle Goal: First scramble the puzzle and then restore each face to a solid color by a sequence of face turns.

Materials: ABS (injection molded), self-adhesive vinyl

Classification: Sequential movement

Notes: This puzzle is like a regular 3x3x3 Rubik's Cube, but on each face there is a little cogwheel that limits to what degree it can be turned. A face can be limited to turn only with 90 or 180 degrees of freedom, be free to turn a full 360 degrees or can even be blocked to not turn at all. By combining these variants many thousands of different puzzles can be made, some far harder than the original 3x3x3 cube.



24

Crazy Pentahedron

Puzzle Goal: Scramble and restore.

Materials: ABS plastic

Classification: Rubik's type twisty puzzle



25

Double Duals

Puzzle Goal: Make a pair of complementary arrangements such that each one contains blocks and 12 sticks symmetrically surrounding a center. Then put them together so that one is inside the other, and they both surround the block without magnets.

Then repeat the entire process with each set of sticks making the opposite arrangement.

Materials: Wood and magnets

Classification: Put-together



26

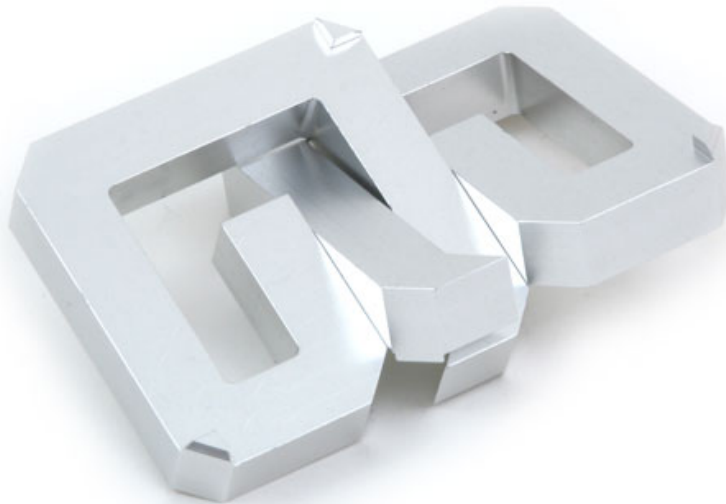
Double G

Puzzle Goal: Separate the pieces, and restore the original shape.

Materials: Aluminum

Classification: Disentanglement

Notes: No force required.



27

Double Symmetry

Puzzle Goal: Arrange the three pieces (one piece is already fixed to the base) to make two symmetric figures simultaneously.

Materials: Acrylic board

Classification: 2-D Assembly



28

Eyjafjallajökull-Puzzle

Puzzle Goal: Make a symmetrical shape. Try to find both solutions, and it will become clear why the puzzle has this name.

Materials: Laser-cut plastic

Classification: 1.1 2 Dimensional Assembly



29

Ferris' Box

Puzzle Goal: Open the puzzle box.

Materials: Maple, walnut wood, brass and metal pieces

Classification: 2.1 Trick or secret opening box



30

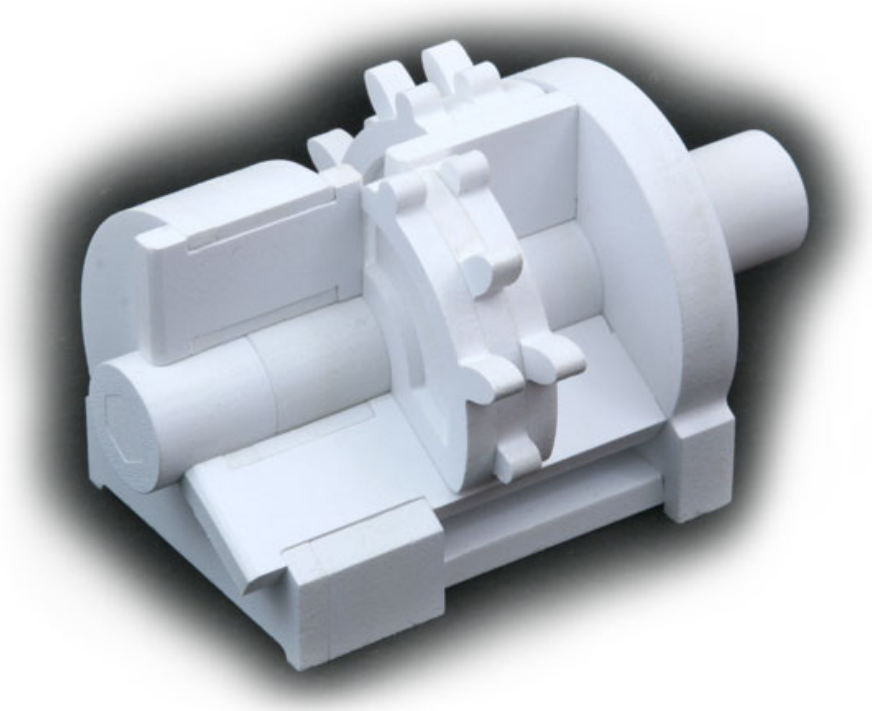
Fidgety Rabbits

Puzzle Goal: Move all seven "rabbits" through the "gate" so that they can be removed from the device.

Materials: PVC foamboard

Classification: Sequential movement

Notes:



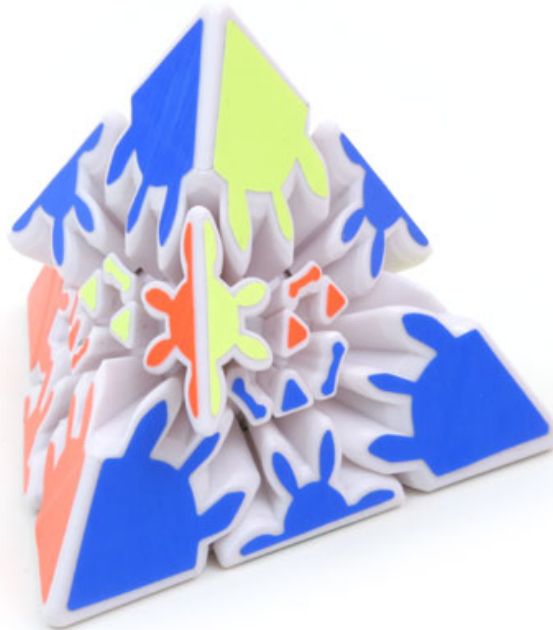
31

Gear Pyraminx

Puzzle Goal: Scramble the puzzle, then find a solution to restore the original shape and match colors on all faces.

Materials: ABS plastic vinyl, stickers

Classification: Sequential movement



32

Genie in the Bottle

Puzzle Goal: Remove the bottle from the device.

Materials: Mahogany, beech, African olive, padauk, etc. magnets, brass

Classification: Take-apart



33

Guile in the Box

Puzzle Goal: Put the four pieces inside and shut the lid flat.

Materials: PVC (vinyl)

Classification: 1.2 3-Dimensional put-together, non-interlocking



34

Heptagon 48

Puzzle Goal: Fit the 2 sets of 6 tetrahepts (a total 48 heptagons) into the tray.

Materials: Marble

Classification: Put-together

Notes: The regular heptagon can tile the plane if allowing for pentagonal space. This puzzle uses that tiling. A "tetrahept" is a figure made of four regular heptagons joined edge to edge. There are seven tetrahepts, but only six are compatible with this tiling.



35

Houdini's Torture Cell

Puzzle Goal: Free Houdini from the Torture Cell.

Materials: Walnut, plastic, metal, and magnets

Classification: 2.1 Trick or Secret Opening

Notes: You will discover some tools and must determine how to use them. Yes, there are lots of magnets in the puzzle but no hitting or banging is required to solve the puzzle.



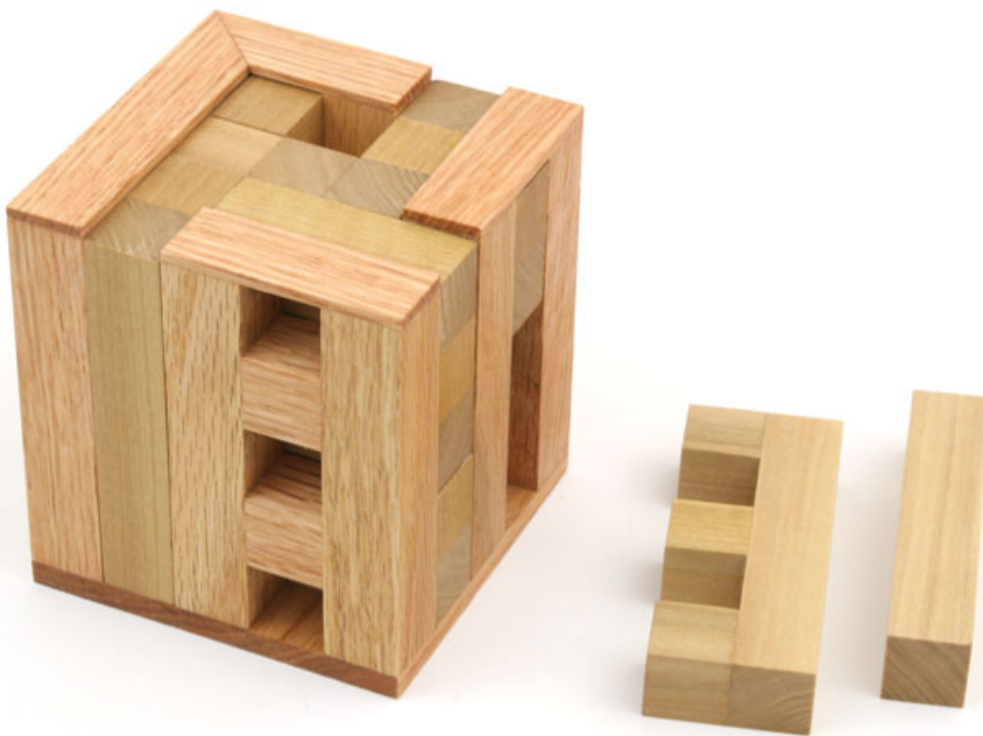
36

IPP32WDC

Puzzle Goal: Place the I, P, P, 3, 2, W, D, C pieces in the frame so that they are enclosed by the frame and locked in place by the final piece.

Materials: Red oak frame, poplar pieces

Classification: Interlocking



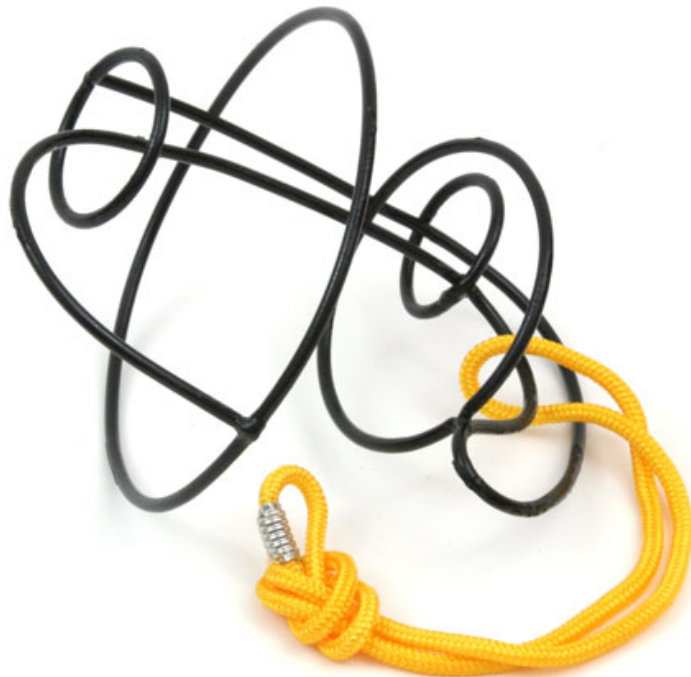
37

J Loops

Puzzle Goal: Remove the string from the wire.

Materials: Steel wire, rope

Classification: Disentanglement



38

Just One More

Puzzle Goal: Place all 17 pieces into the square tray.

Materials: Walnut, birch veneer plywood

Classification: Put-together



39

Little Game Hunter

Puzzle Goal: Discover two hidden chambers by moving external puzzle pieces; then take apart the entire puzzle into individual pieces and re-assemble.

Materials: Mahogany and cedar

Classification: Take-part



40

Little Window

Puzzle Goal: Take apart, or put together. Both equally challenging.

Materials: Manzanita and zebrawood

Classification: Take-apart



41

Lock Device

Puzzle Goal: Arrange the five pieces on the flat table so that all the pieces are interlocked with no relative movement.

Materials: Walnut

Classification: 2D interlocking



42

The "Locked Room Mystery" Puzzle

Puzzle Goal: Open box with the key provided.
To avoid scratching the windows, please do not shake the box.

Materials: Corian, acrylic and steel

Classification: Trick opening



43

Lucy

Puzzle Goal: Remove the free-floating lid.

Materials: Box made from rosewood; internal made from misc. exotic woods

Classification: Take-apart



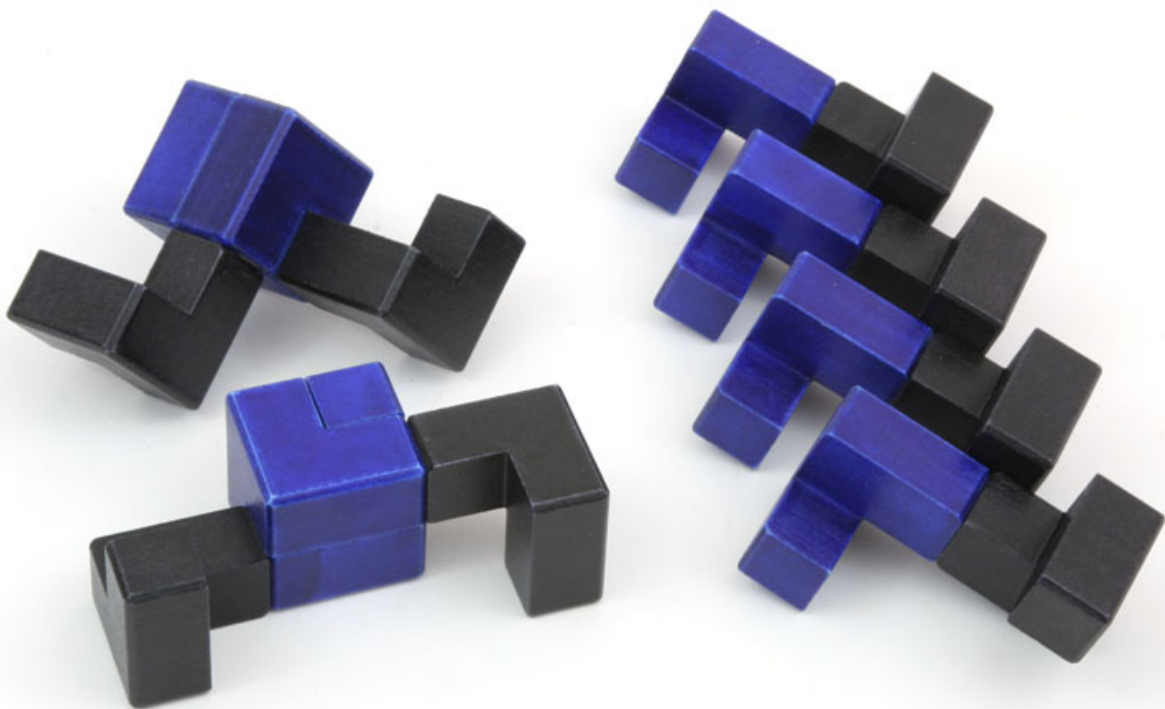
44

Match the Eight Cubes

Puzzle Goal: Construct eight cubes. Slight flexing of pieces is required.

Materials: Nylon colored and varnished

Classification: Interlocking



45

The Matrix

Puzzle Goal: Use the tubes to to arrange the four balls (each of different color) into their correct location.

Materials: Two plastic cylinders, eight plastic pipes, and four plastic marbles/beads.

Classification: Sequential movement

Notes: The Matrix tubes represent two permutations and their inverses.



46

Mechanical Rings

Puzzle Goal: Take apart, and put back together.

Materials: Wood

Classification: Disentanglement/Interlocking

Notes: Inspired by Cast Coil.



Multidodecahedron

Puzzle Goal: Scramble the puzzle and then restore each face to a solid color by a sequence of turns of the 12 faces.

Materials: Nylon (selective laser sintering), self-adhesive vinyl

Classification: Sequential movement

Notes: This puzzle is comprised of two puzzles, where a smaller puzzle sits inside of a larger puzzle. A turn on the outside puzzle also affects the inner puzzle. Of course, both puzzles must be solved simultaneously. By varying the cut depths on a face-turning dodecahedron, different types of pieces appear and disappear. In this puzzle, that combines the piece sets from the Master Pentultimate and Megaminx puzzles, all pieces that can be created using just two cuts are present and must be solved.



48

Nested Cubes

Puzzle Goal: Arrange the nested cubes with lids so that they fit inside the largest box with the fixed brass rod. Each cube must be oriented so that the rod goes through one of its three holes.

Materials: Walnut boxes and brass pin

Classification: Put-together

Notes: Please do not touch the brass pin!! Its vertical alignment is extremely important for Nested Cubes to be solved.



49

New 3-4-5iamonds

Puzzle Goal: Place the 20 pieces into either side of the tray. One side of the tray is a single-layer triangle; the other side is a double-layer diamond.

Goal 1: It doesn't matter whether pieces are light or dark side up.

Goal 2: Place all pieces dark-side up.

Materials: Rosewood coated fiberboard

Classification: Put-together



50

One Circle - Two Circles

Puzzle Goal: Arrange the marbles into groups of four with the same colors, and arrange the groups as indicated by the colored fragments of the top panel. The central circle allows for two different configurations: one with two distinct circles (each with 12 marbles), or a single closed loop with all 24 marbles.

Materials: Acrylic

Classification: 5 Sequential Movement



51

Pack-Man

Puzzle Goal: Fit the five pieces flat within the tray.

Materials: Acrylic and ABS plastics

Classification: ASS-OTH



Peanut Gallery

Puzzle Goal: Slide the pieces (without picking them up) so that they end up in the same arrangement as the start but where no two adjacent (touching) pieces have the same color.

The start position is shown in the photo and on the bottom of the tray (identical line styles correspond to identical colors).

Materials: Puzzle: Laser cut acrylic.

Case: Re-used audio CD case with foam insert.

Classification: Sliding



53

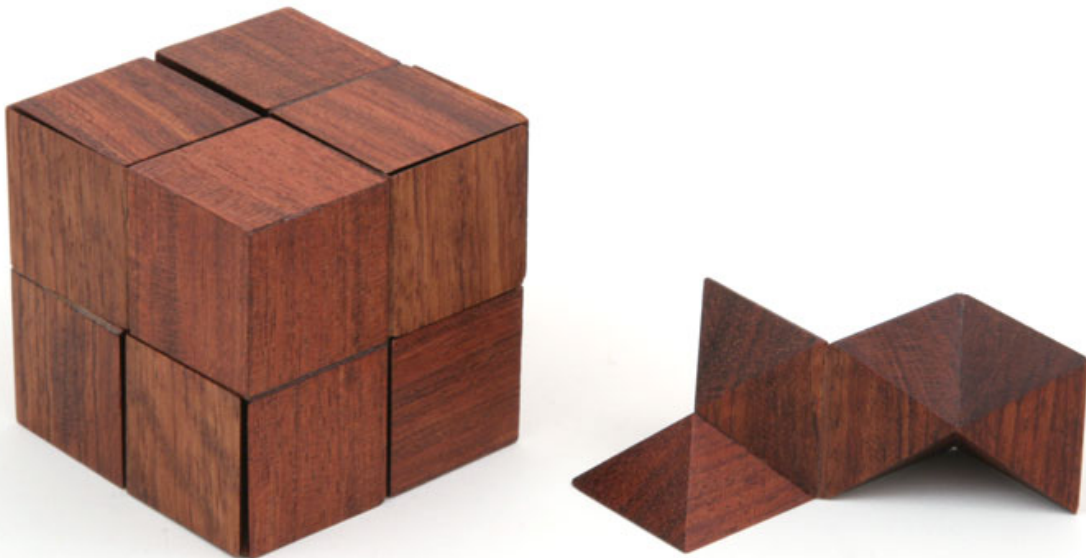
Pearson Puzzle Pieces

Puzzle Goal: Construct a cube using the eight pieces.

Materials: Bubinga wood

Classification: Interlocking

Notes: Inspired by Stewart Coffin's *Pieces-of-Eight*.



Perplexing Palace Puzzle

Puzzle Goal: The Queen, surrounded by her nine attendants, starts in the center of the palace. Take her out of the palace then return her and her attendants to their starting positions.

Materials: Acrylic

Classification: OPN-OTH



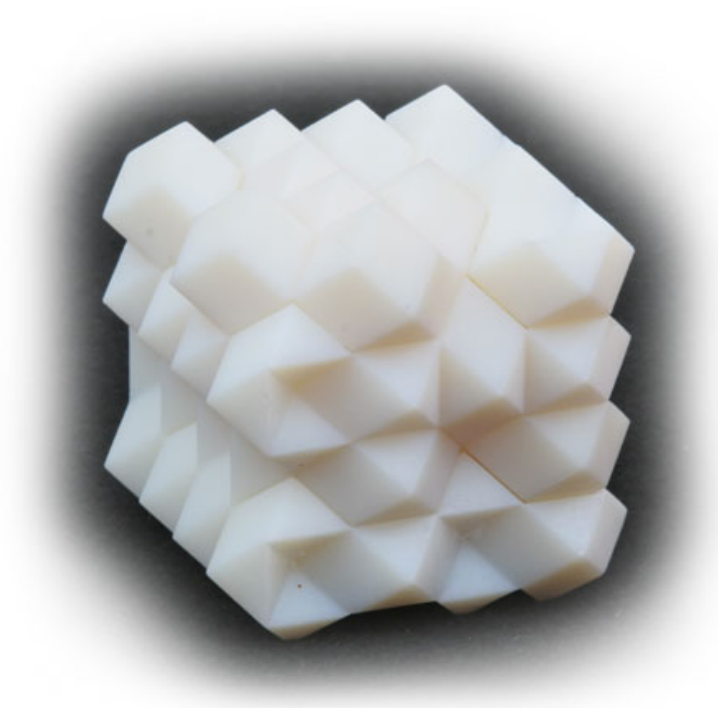
55

Prickly Burr 12

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

Materials: 3D-printed plastic

Classification: Put-together



56

Puzzle in a Puzzle Box

Puzzle Goal: Open the box, and assemble a pyramid-like stack of balls using all the pieces contained in the box.

Materials: Walnut, ebony, birdseye maple, maple, bamboo, felt, magnets

Classification: Trick opening puzzle box and 3D assembly



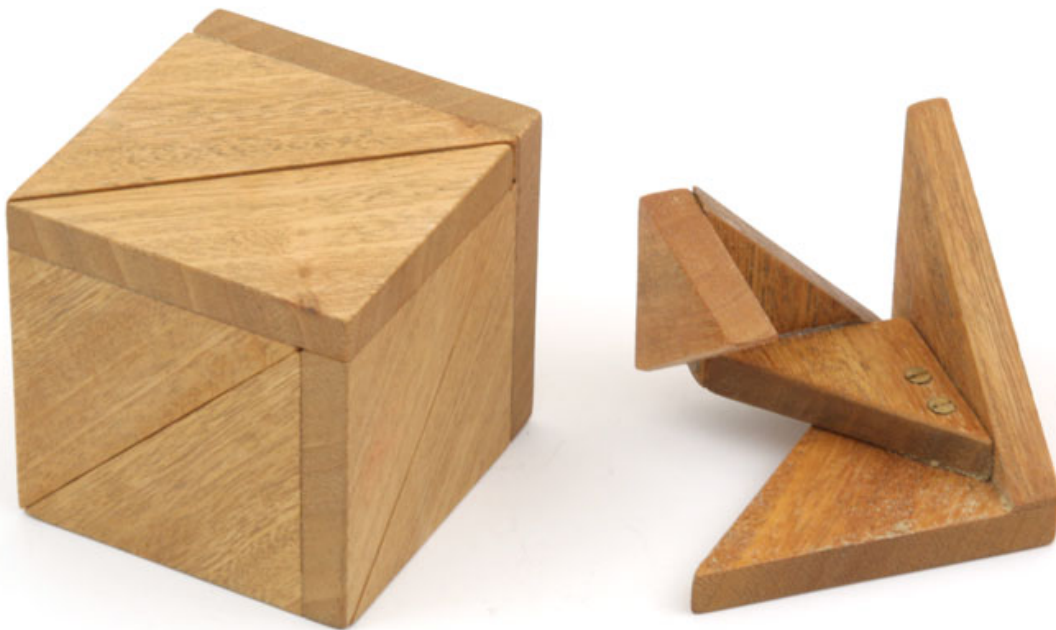
57

Rat Box

Puzzle Goal: Open the box into four pieces, then re-assemble box.

Materials: Idigbu wood, brass screws

Classification: OPN-BOX



58

Rattle Twist Duo

Puzzle Goal: Disassemble and reassemble the three pieces. Two options for the ring pieces are provided.

Materials: Wood

Classification: Interlocking



59

ReCube

Puzzle Goal:

1. Take it apart into three pieces. This is only possible by moving all three parts at the same time.
2. Put the puzzle back together. In order to do this the parts must be precisely positioned relative to each other. After that they will slide together with coordinated motion.

Materials:

Stainless steel infused with bronze.

Classification:

Coordinate motion



RotoPrism 2

Puzzle Goal: Scramble the puzzle by making a few random twists on the three turning axes, then restore it to its original state with one color on each face, and all curved pieces in alignment with each other.

Materials: Selective laser sintered (SLS) nylon, vinyl stickers, steel screws & springs.

Classification: Sequential Movement

Notes: 180 degree turns are required unless an axis face shows 4-way symmetry, in which case 90 degree turns are possible.



61

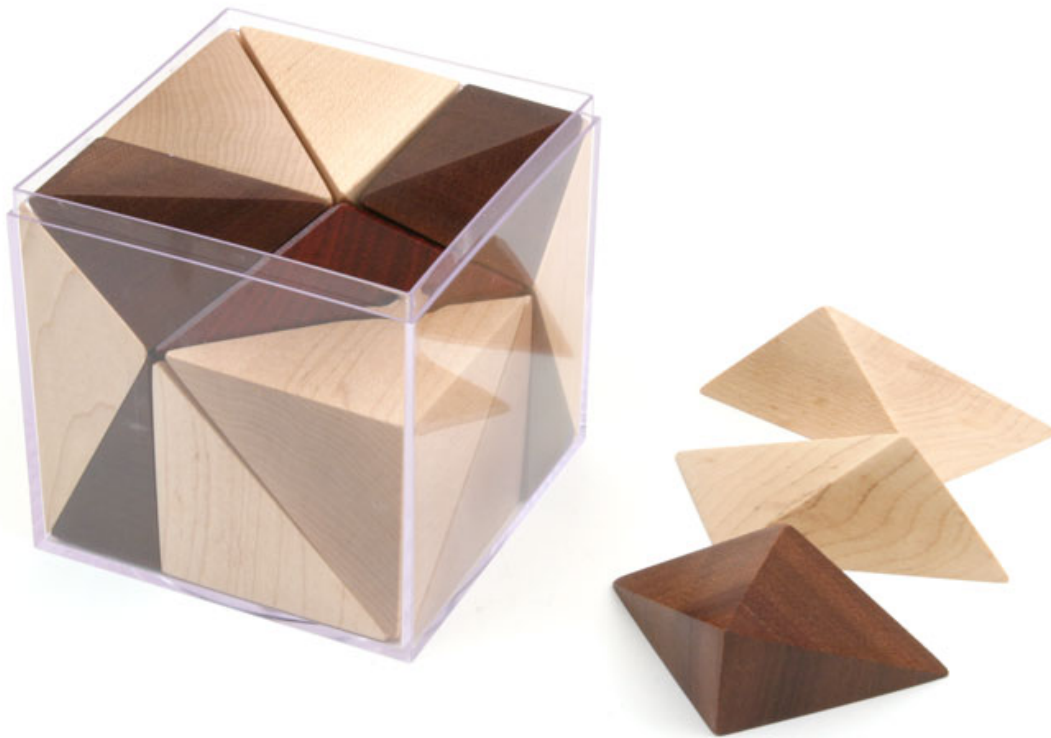
Six Cushion Shot

Puzzle Goal: Pack 19 pieces in 4x4x4 plastic box.

Materials: Maple, sapella, padauk

Classification: Packing

Notes: This design is based on the cyclic path of a virtual particle bouncing around inside a cube.



62

Smartegg

Puzzle Goal: Lead the stick from start (red) to finish (green), through the spatial, multi layered, dynamic body.

Materials: Bird cherry wood

Classification: Sequential movement



63

Square in the Bag

Puzzle Goal: Place the square completely inside the bag. No undue force is required.

Materials: Acrylic (square piece), Nylon (bag)

Classification: 1.2 3-D Assembly



64

Square Waltz

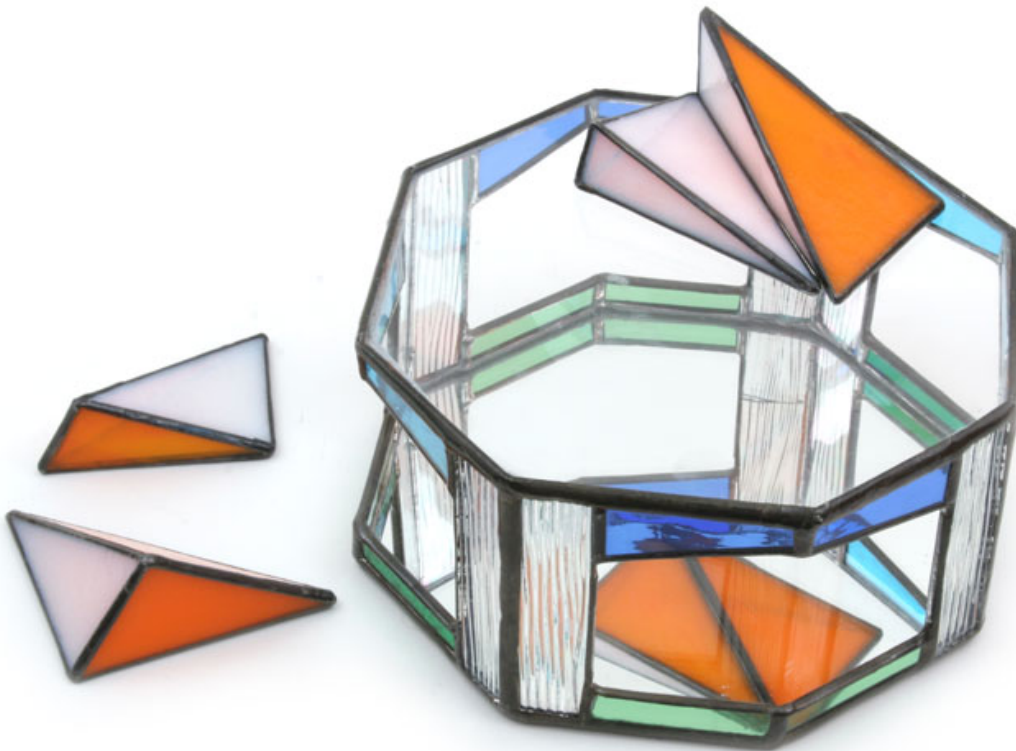
Puzzle Goal: Arrange the four triangular pyramid pieces (all faces are right-triangles) on the transparent glass stage to make:

1 - Orange square

2 - White square

Materials: Stained glass

Classification: 3-Dimensional assembly



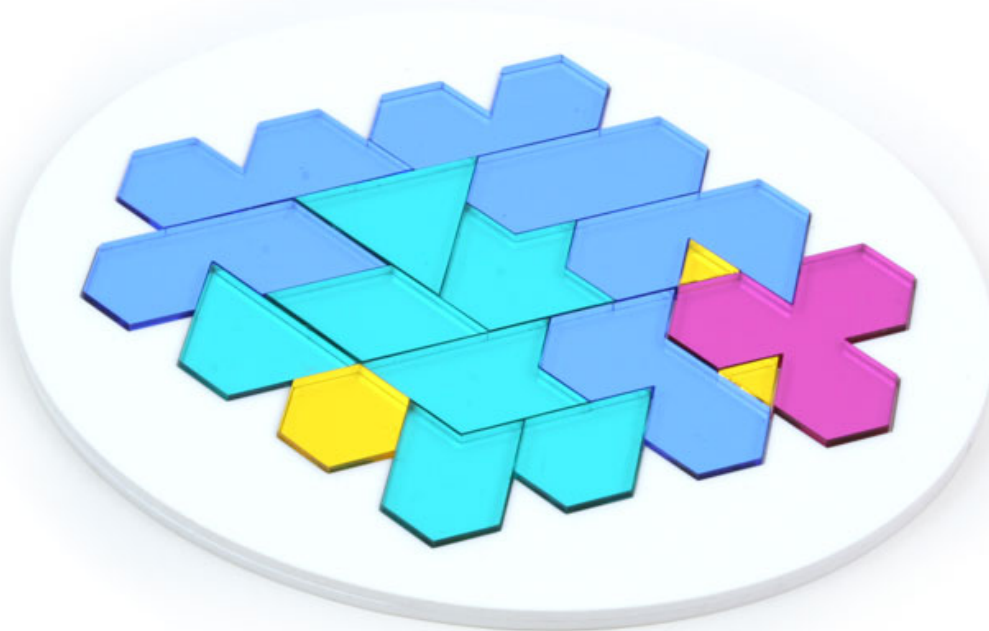
StarHex II

Puzzle Goal: Assemble the 17 polystar tiles so that the total length of common edges between tiles of the same color is minimized.

Materials: Lasercut acrylic in four transparent colors, and white tray

Classification: Put-together

Notes: See solution page for additional challenges.



66

Tango in Nut

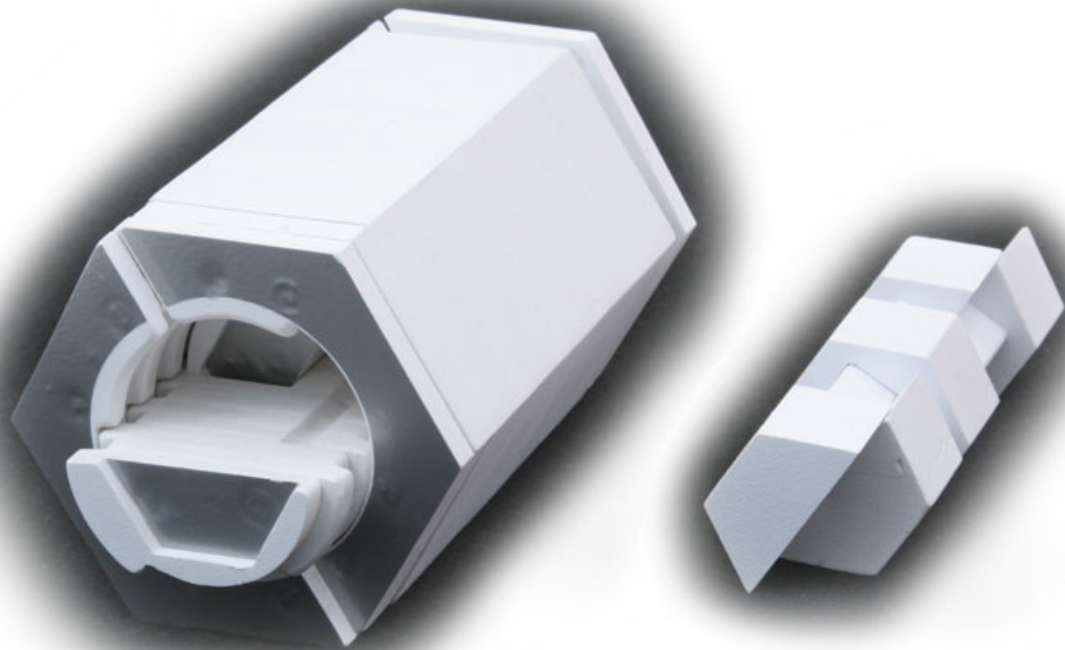
Puzzle Goal:

1. Take the halved sliding screw with stair-like thread out of the halved sliding nut.
2. Find the shortest path.

Materials: PVC foam board

Classification: Sequential motion

Notes: The extra piece is a tool to turn the screw when it cannot be grabbed.



67

Target in a Cube

Puzzle Goal: Disassemble and reassemble the cube, while arranging the position of internal pieces.

Materials: Wood: akume, satinwood, patawa

Classification: Interlocking



Trapentrix

Puzzle Goal: Scramble the puzzle by making random turns on two turning axes, and find a solution to restore the original colors pattern.

Materials: Selective laser sintered (SLS) nylon, vinyl stickers

Classification: Sequential movement



69

Triangle-Square-Pentagon

Puzzle Goal:

1. Using three pieces, form an isosceles triangle.
2. Using four pieces, form a square.
3. Using all of the five pieces, form a regular pentagon.

Materials:

Plastic

Classification:

Put-together



70

Tritalon

Puzzle Goal: **1: Take out the coin.**
 2: Put the coin back in place.

Materials: Aluminum, coin

Classification: 2.2 Secret Compartment



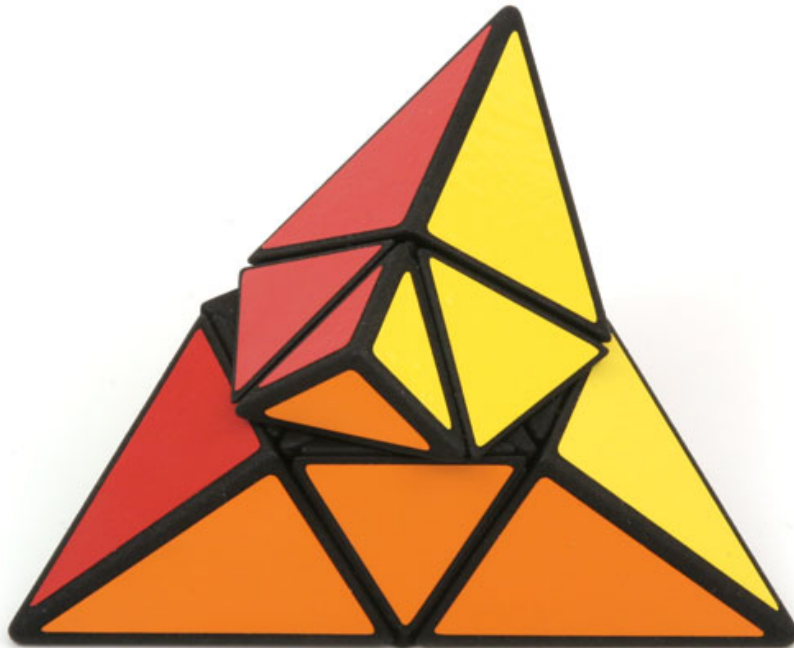
71

TriTangle

Puzzle Goal: Scramble the puzzle by making a few random turns on the three turning axes, then restore it to its original state with a single color on each face.

Materials: Selective laser sintered (SLS) nylon, vinyl stickers, steel screws & springs.

Classification: Sequential movement



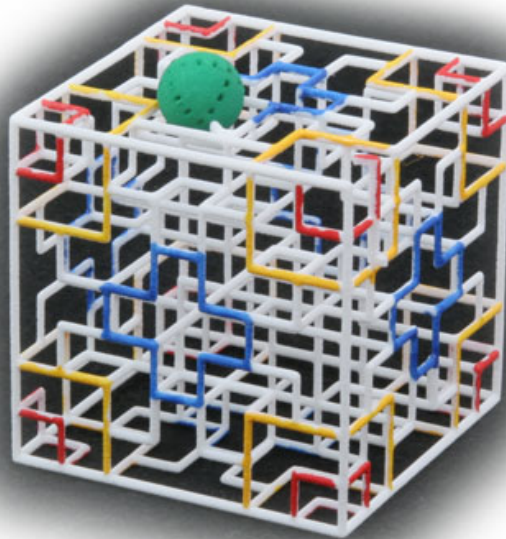
Twisted Symmetry

Puzzle Goal: Navigate the ball from the entrance to the exit; or navigate from the exit to the entrance.

Materials: Laser sintered nylon, enamel paints, plastic box

Classification: Maze and Route / Dexterity

Notes: Walls of a conventional 3D maze are replaced with rods. Many rods have been removed, and distracting rods added. Also the outside frame has been altered to form symmetric designs.



73

Varibyrinth

Puzzle Goal: Slide the blocks to construct a maze that provides a continuous path for the ball to travel from start to finish.

Materials: Durafoam PA and Aqua 60

Classification: Sliding Piece Puzzles

Notes: Only when the maze is correctly constructed, will you be able to slide the switch on the back panel to release the ball into the maze.



74

The Vault

Puzzle Goal: Open the vault, then close it.

Materials: Woods: mahogany, ebony, chakte viga

Classification: Trick opening

Notes: Closing the vault is not just reversing the opening steps--a different mechanism prevents the door from being shut by accident!



75

W8-Variation

Puzzle Goal: Construct a shape that is the same shape as any of the eight individual pieces, just with twice the dimensions.

Materials: Wood

Classification: Put together



Washington Skyline

- Puzzle Goal:**
1. Arrange the pieces into one continuous loop so as to form an imaginary Washington DC skyline. Each piece contains part of a building.
 2. Find the three hidden US presidents' faces.

Materials: Walnut

Classification: 1.1 2-Dimensional assembly puzzle



77

With Luck or Effort

Puzzle Goal: Get the wooden ball into the indentation at the end of the stick.

Materials: Poplar, ebony, dogwood, glass bottle

Classification: Dexterity



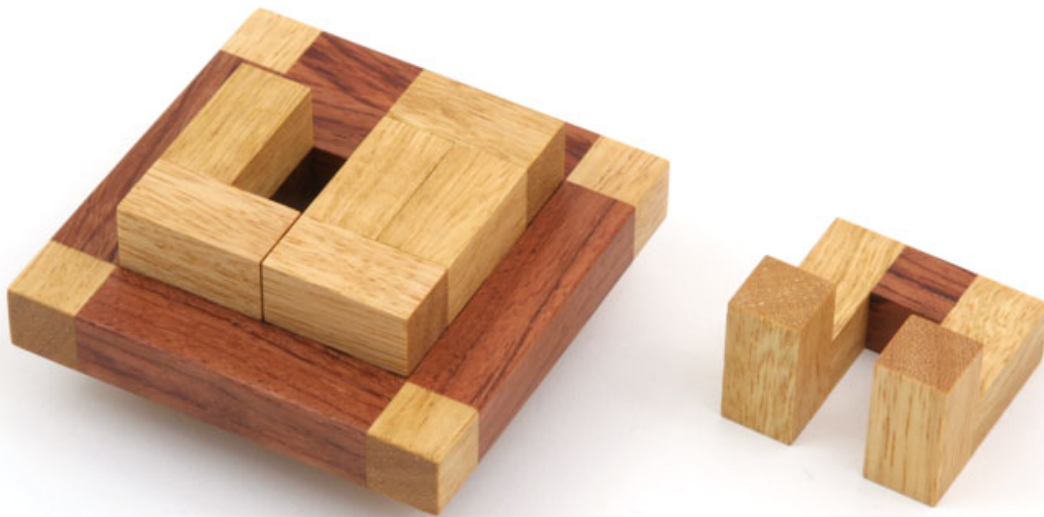
78

W-Toast

Puzzle Goal: Assemble the four identical pieces inside the center of the board.

Materials: Wood

Classification: Interlocking



Puzzle Goal: Balance all 32 sticks on the top of the stand.

Materials: Aluminum stand, pine sticks

Classification: balancing puzzle

Notes: XXXII is a variant of the nail balancing puzzle. However, sticks are without head and the top of the stand is not horizontal but peaked.



80

Ze House of Mouse Ze Duong

Puzzle Goal: Find Mousie hiding inside the house.

Materials: Wood, electronics

Classification: Slocum 2.1

