



## THE HISTORY OF INTERLOCKING BURR PUZZLES

The earliest known appearance of an interlocking puzzle, a six-piece burr, was in an engraving by the French artist Sebastien Le Clerc in 1698. There are, however, unverified stories of Japanese interlocking puzzles (*kumiki*) being produced in the seventh century and a six-piece bur invented in China by Lu Ban Sou as early as the seventh century B.C. A diagram for cutting the notches in the pieces of a six-piece burr was first shown in a Spanish book by Irol in 1733, and six-piece and 24-piece burrs were sold in Berlin in Peter Friedrich Catel's catalog of 1785.\*

\*From Jerry Slocum and Jack Botermans, *Het Ultieme Puzzelboek*, 2007.

### ZIG-ZAG KNOT™ COMPONENTS

		
Pink	Yellow	White
		
Blue	Black	Green

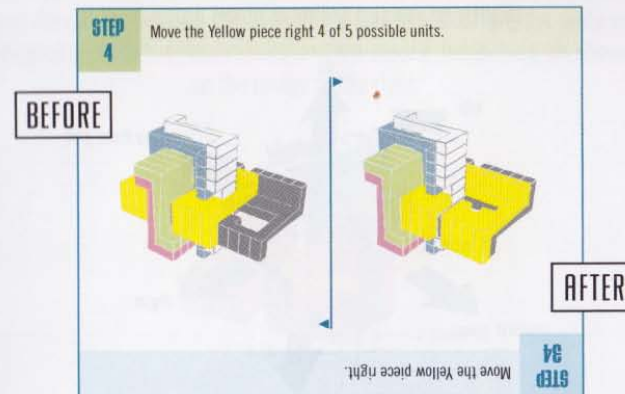
This side of the solution guide contains step-by-step instructions for how to take the puzzle apart. If you flip the guide over, you'll see instructions for how to put it back together.

## TAKING APART ZIG-ZAG KNOT™

Move the pieces back and forth, removing them as you are able. The solution to the puzzle is intricate and requires a precise order of movements. Sometimes you will have to move a single piece; other times, a pair of pieces. There are no tricks required to solve this puzzle! You will never have to rotate, bend or twist the pieces, nor will you need to use brute force.

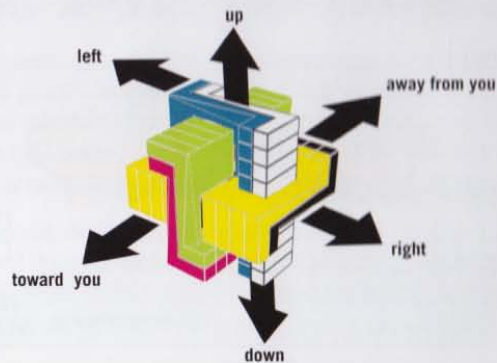
The image opposite shows a sample set of instructions. The step is described at the top of the page. On the left is an image of the puzzle *before* you perform the instruction. On the right is an image of the puzzle *after*. We've highlighted the piece(s) that move during this step and muted the others.

Sometimes, the same piece is moved in consecutive steps. We define a single step as moving a piece (or pair) in one direction. Thus, when the same piece is moved in a different direction, it will be illustrated in the next step.

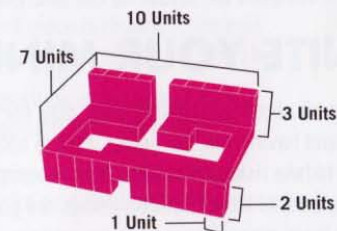


## MOVING THE PIECES

There are six possible directions a piece can move: **left**, **right**, **up**, **down**, **toward you** and **away from you**. (The images in this guide have been tilted slightly so you can see more of the puzzle.)



Unless an instruction specifically states otherwise, you should move each piece as far as it will go. Some of the instructions will specify the number of **units** that a piece (or pair) should be moved. In these cases, you need to be careful *not* to move the piece (or pair) as far as it can go and instead stop at the position indicated. As a further visual aid, the units are indicated on both the illustrations and the pieces themselves, as shown on the image to the right.



## ABOUT THE INVENTOR

Ronald Kint-Bruynseels is a talented puzzle designer and theoretical psychologist from Belgium. He loves designing puzzles that look unique or are unexpected. Ronald is a member of the International Puzzle community and had the honor of designing the trophy puzzle for its 2009 competition.

Many thanks to George Miller, a puzzle prototyper, who designed the layout for the solution.

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## ZIG-ZAG KNOT™ HINTS

In the pages that follow, we present a solution which requires 37 steps. If you wish to attempt to solve Zig-Zag Knot without using the solution, you may want to use the following hints instead:

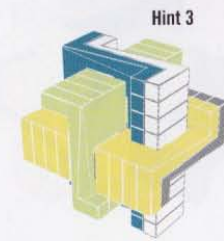
**Hint 1:** The Pink piece is the first to be removed, and it is removed at step 7.

**Hint 2:** After the Pink piece is removed, the next six steps essentially reverse the first six.

**Hint 3:** This is the position of the pieces after Step 13 (see picture to the right).

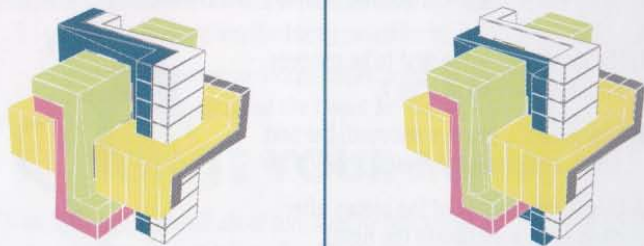
**Hint 4:** The Yellow piece is next to be removed at step 20. Its pair, the Black piece, remains in the knot.

**Hint 5:** The last two pieces in the puzzle are Black and Green.



**STEP 1**

Move the Blue piece down.

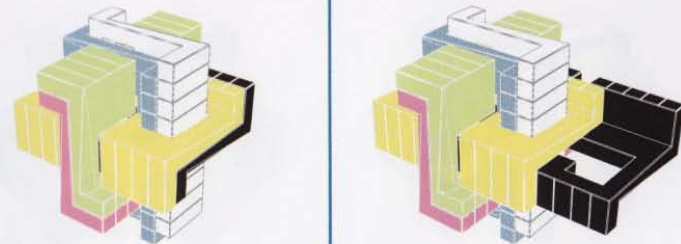


Move the Blue piece down. The puzzle is solved!

**STEP 37**

**STEP 2**

Move the Black piece right 4 of 5 possible units.

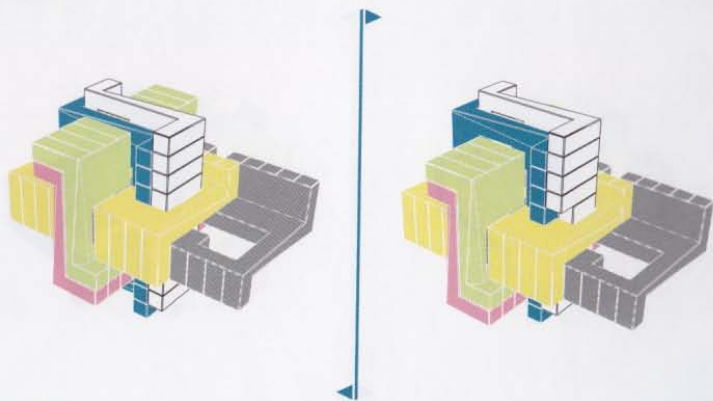


Move the Black piece right.

**STEP 36**

**STEP**  
**3**

Move the Blue and White pieces up.

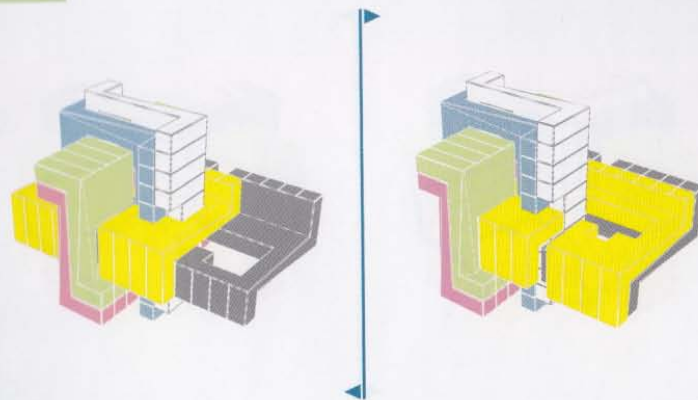


Move the Blue and White pieces up.

**STEP**  
**35**

**STEP**  
**4**

Move the Yellow piece right 4 of 5 possible units.

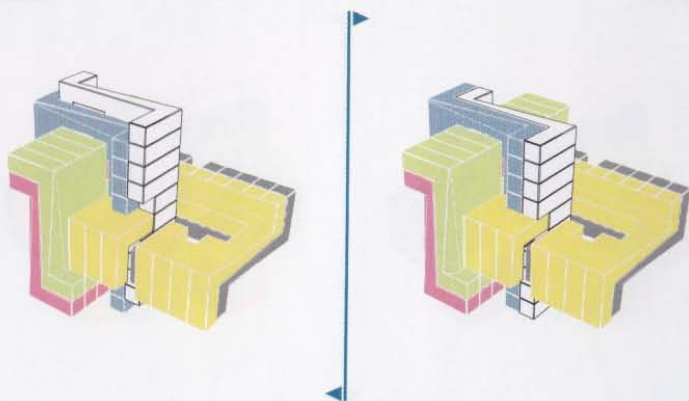


Move the Yellow piece right.

**STEP**  
**34**

**STEP**  
**5**

Move the White piece down.

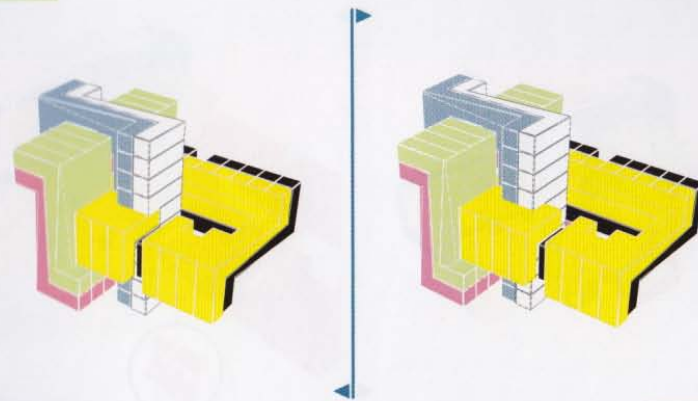


Move the White piece down.

**STEP**  
**33**

**STEP**  
**6**

Move the Yellow and Black pieces right.

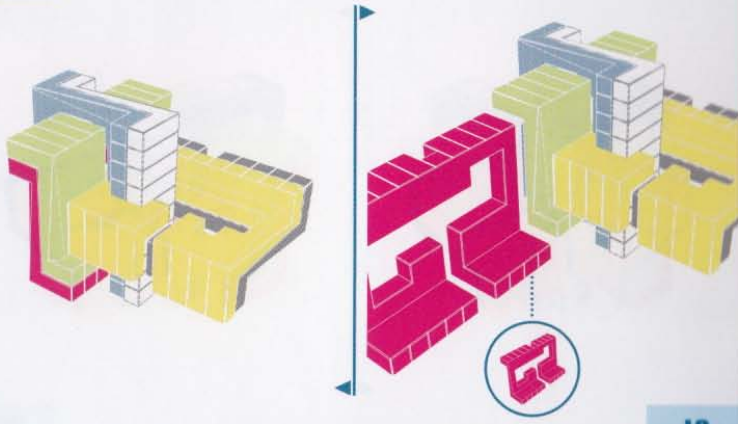


Move the Yellow and Black pieces right.

**STEP**  
**32**

**STEP 7**

Move the Pink piece toward you, out of the puzzle.

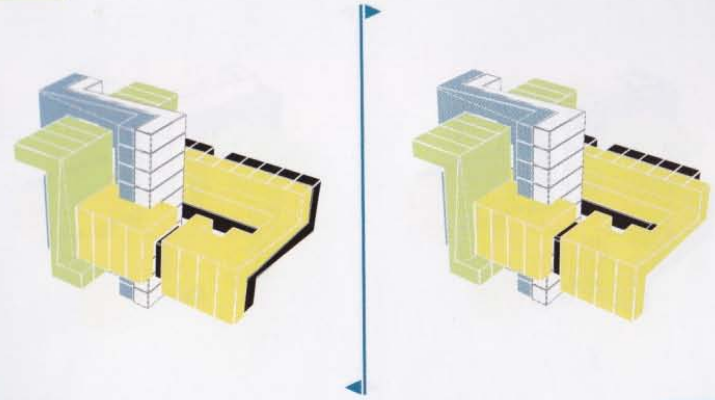


Move the Pink piece 10 units into the puzzle, flush with Green.

**STEP 31**

**STEP 8**

Move the Black piece left.

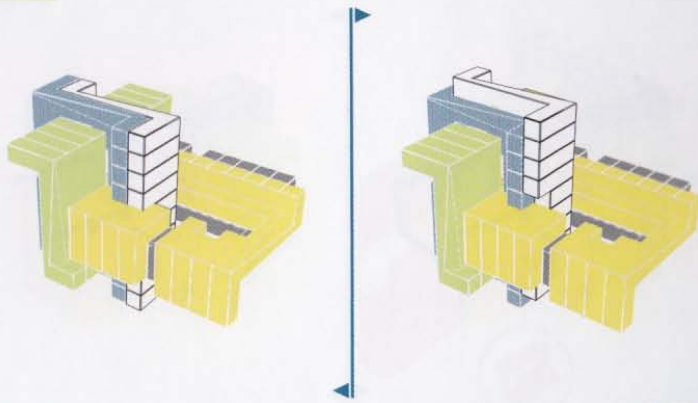


Move the Black piece left.

**STEP 30**

**STEP 9**

Move the White piece up.

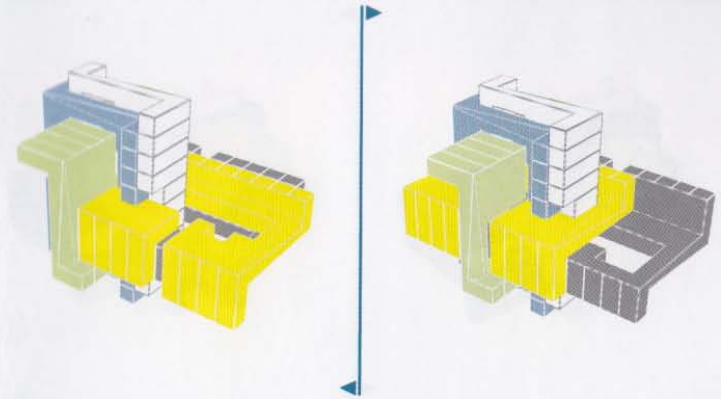


Move the White piece up.

**STEP 29**

**STEP 10**

Move the Yellow piece left.

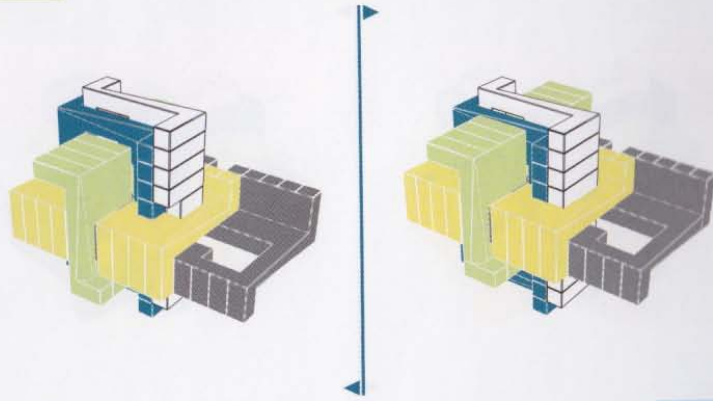


Move the Yellow piece left.

**STEP 28**

**STEP 11**

Move the Blue and White pieces down.

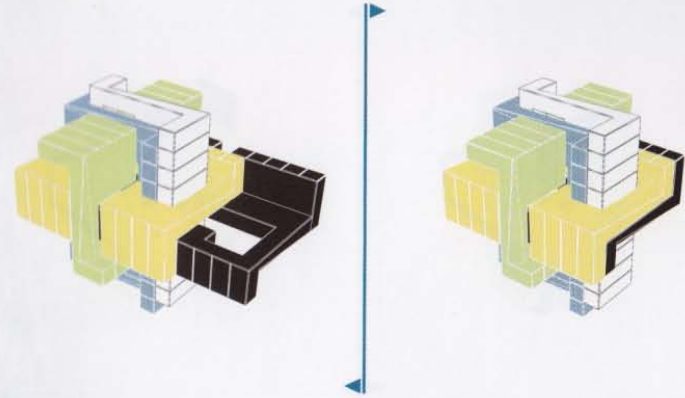


Move the Blue and White pieces down.

**STEP 27**

**STEP 12**

Move the Black piece left.

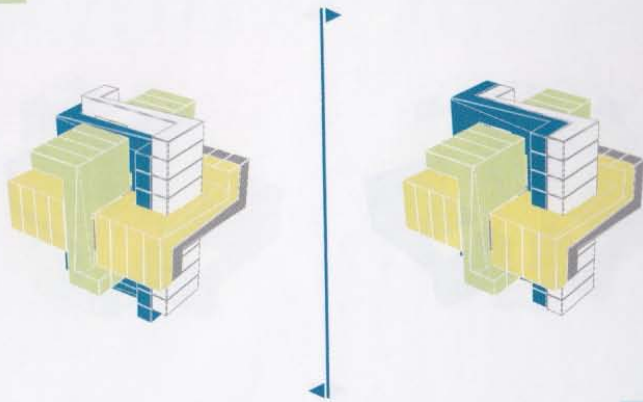


Move the Black piece left 4 of 5 possible units.

**STEP 26**

**STEP 13**

Move the Blue piece up 1 of 2 possible units.

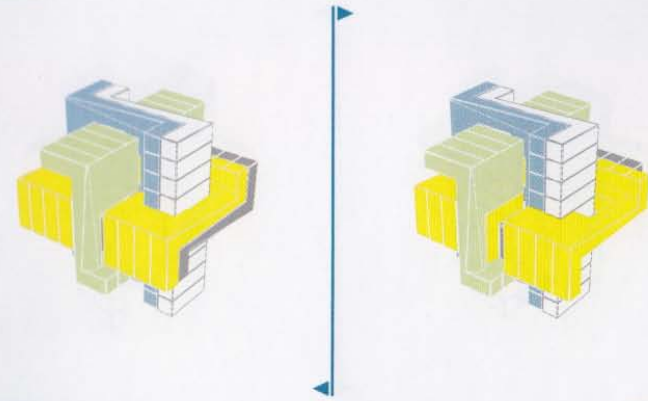


Move the Blue piece up 1 of 4 possible units.

**STEP 25**

**STEP 14**

Move the Yellow piece right.

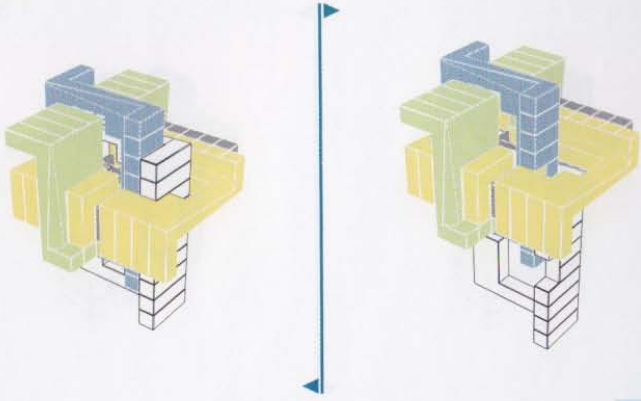


Move the Yellow piece right.

**STEP 24**

**STEP 17**

Move the White piece down.

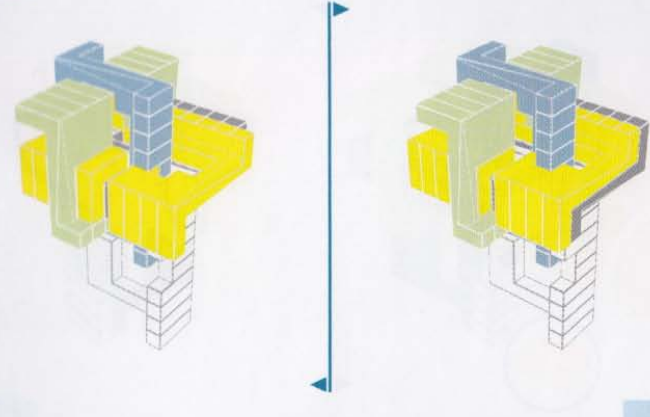


Move the White piece down.

**STEP 21**

**STEP 18**

Move the Yellow piece left 1 of 2 possible units.

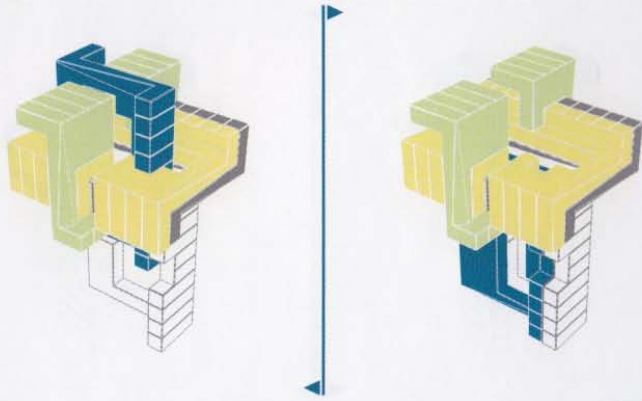


Move the Yellow piece left 1 of 5 possible units.

**STEP 20**

**STEP 19**

Move the Blue piece down.

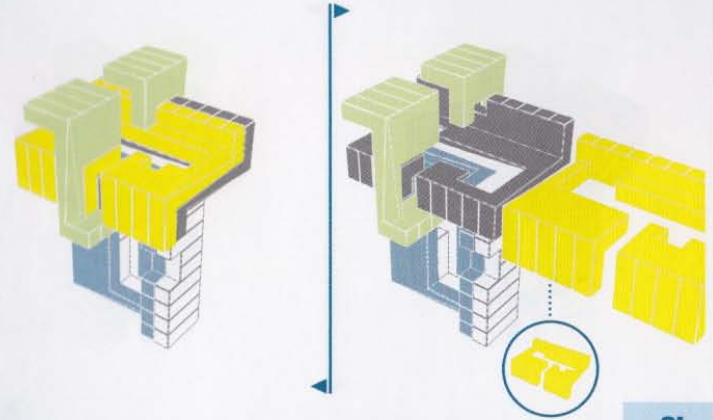


Move the Blue piece down 5 of 6 possible units.

**STEP 19**

**STEP 20**

Move the Yellow piece right, out of the puzzle.

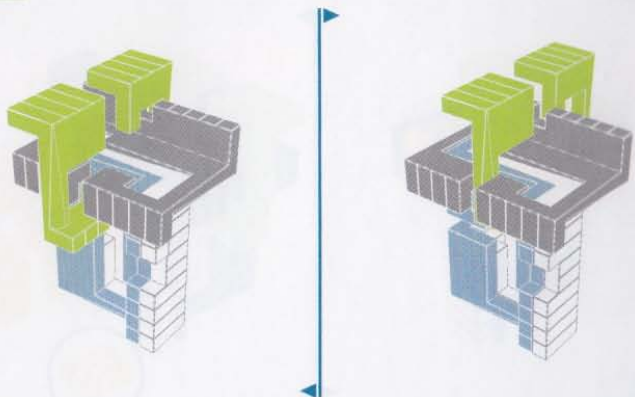


Move the Yellow piece right 10 units, flush with Black.

**STEP 18**

**STEP 21**

Move the Green piece away from you.

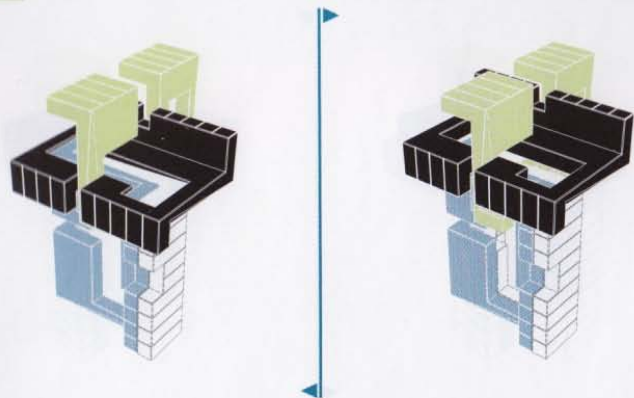


Move the Green piece toward you.

**STEP 17**

**STEP 22**

Move the Black piece up.

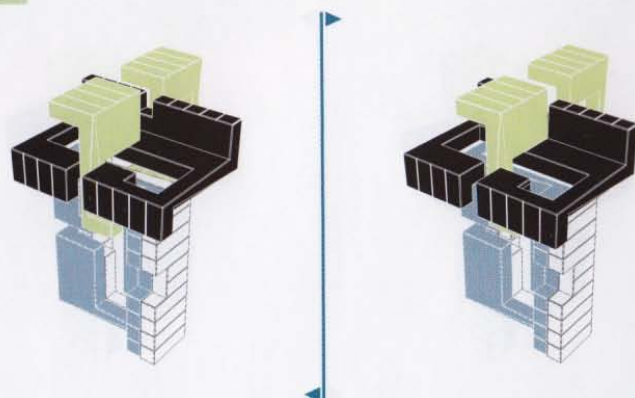


Move the Black piece up.

**STEP 16**

**STEP 23**

Move the Black piece toward you.

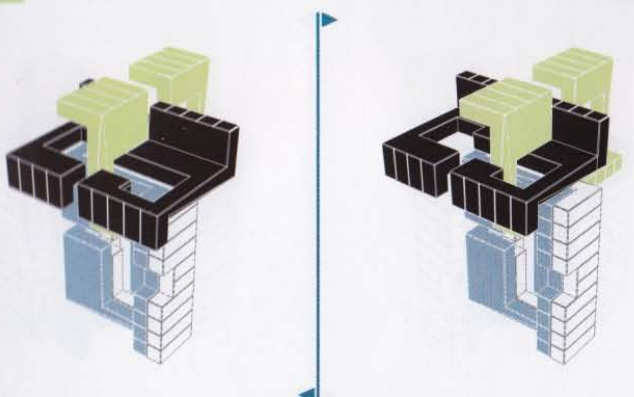


Move the Black piece away from you.

**STEP 15**

**STEP 24**

Move the Black piece left 2 of 4 possible units.



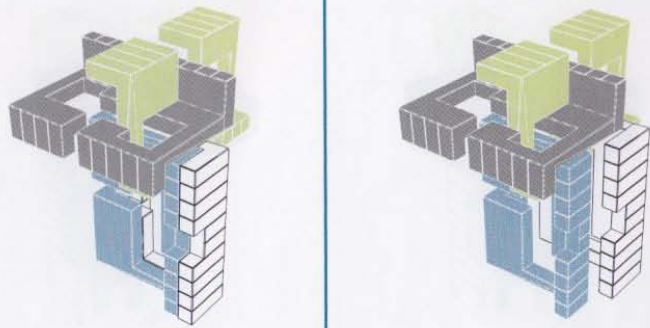
Move the Black piece left 2 of 5 possible units.

**STEP 14**



**STEP 25**

Move the White piece away from you 3 of 6 possible units.

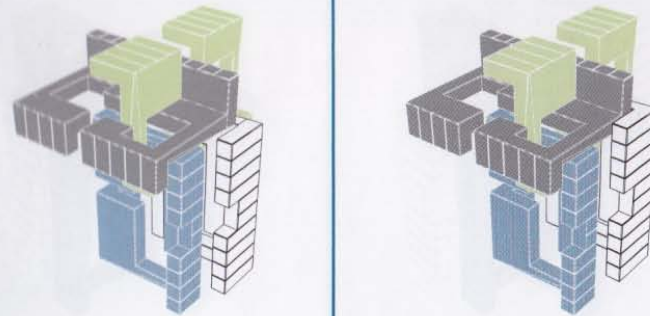


Move the White piece toward you.

**STEP 13**

**STEP 26**

Move the White piece up 1 of 3 possible units.

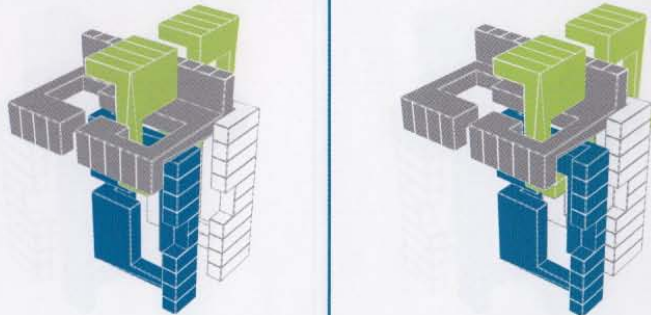


Move the White piece up.

**STEP 12**

**STEP 27**

Move the Blue and Green pieces right.

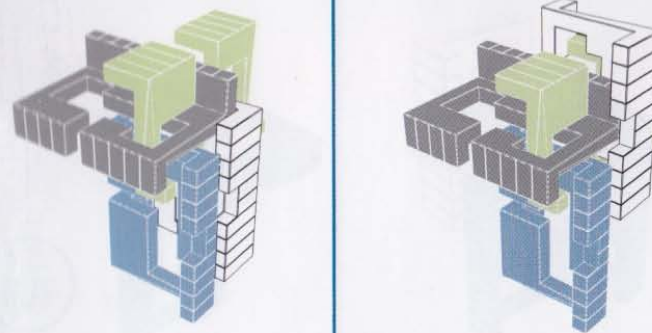


Move the Blue and Green pieces right.

**STEP 11**

**STEP 28**

Move the White piece up.

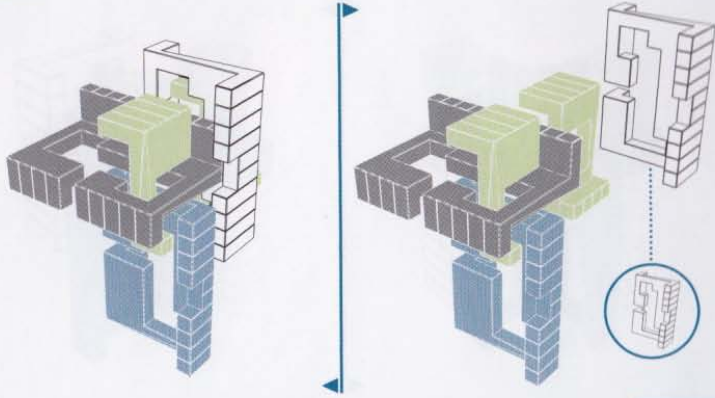


Move the White piece up.

**STEP 10**

**STEP 29**

Move the White piece away from you, out of the puzzle.

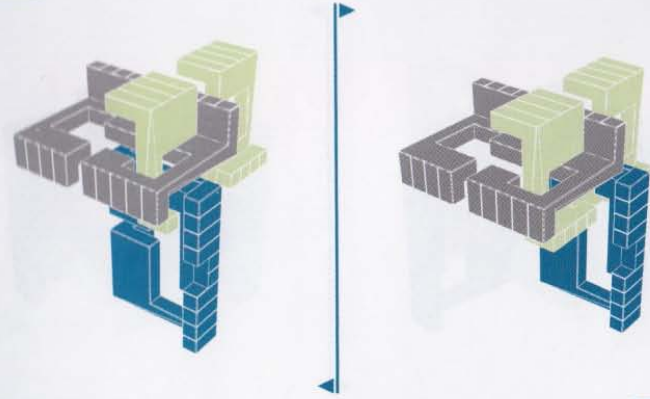


Move the White piece toward you, into the puzzle.

**STEP 9**

**STEP 30**

Move the Blue piece away from you 4 of 7 possible units.

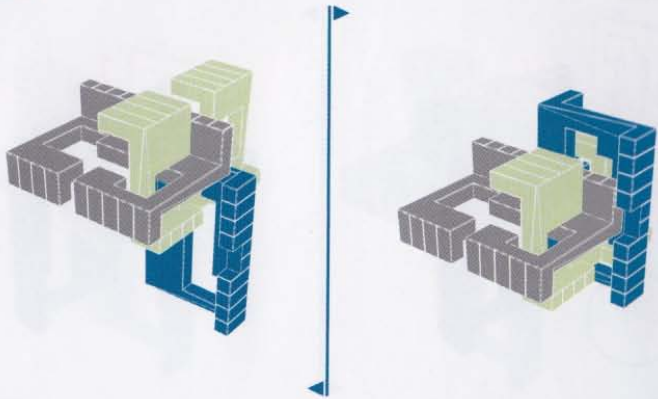


Move the Blue piece toward you.

**STEP 8**

**STEP 31**

Move the Blue piece up.

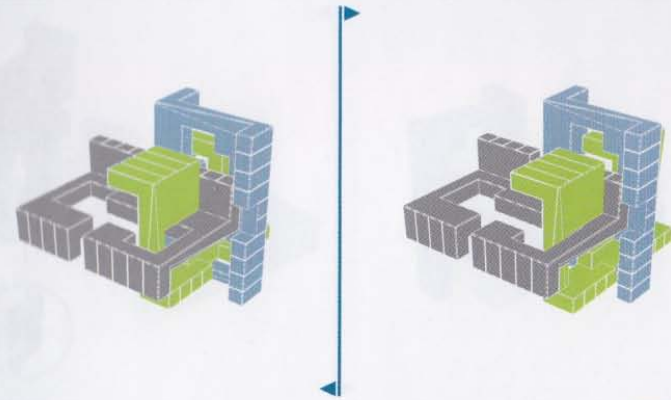


Move the Blue piece up.

**STEP 7**

**STEP 32**

Move the Green piece right.

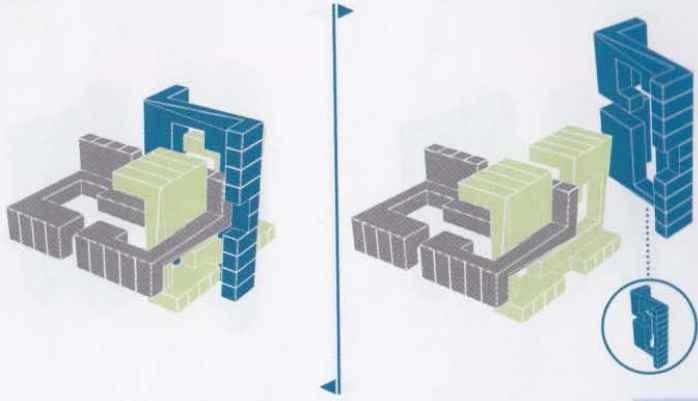


Move the Green piece right.

**STEP 6**

**STEP**  
**33**

Move the Blue piece away from you, out of the puzzle.

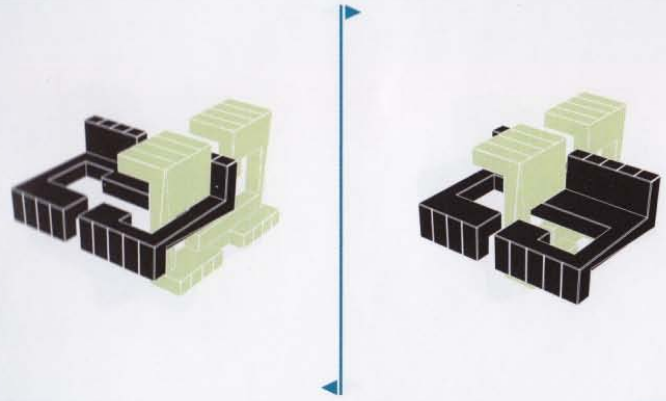


Move the Blue piece toward you, into the puzzle.

**STEP**  
**5**

**STEP**  
**34**

Move the Black piece right 4 of 7 possible units.

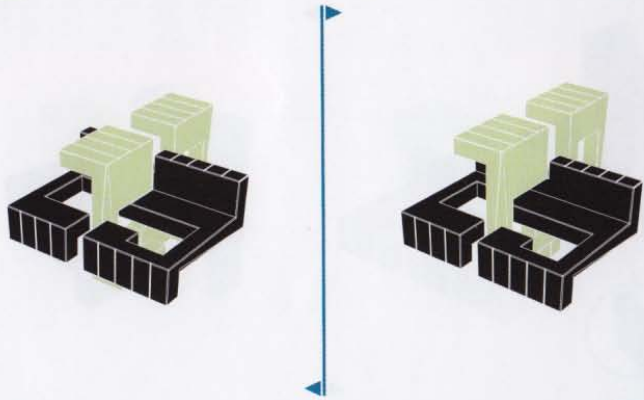


Move the Black piece right.

**STEP**  
**4**

**STEP**  
**35**

Move the Black piece down.

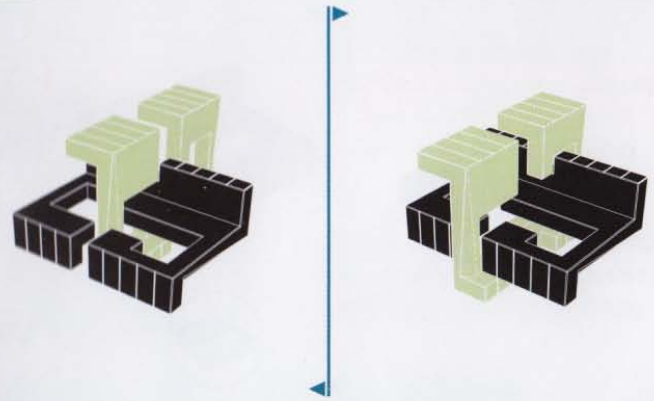


Move the Black piece down.

**STEP**  
**3**

**STEP**  
**36**

Move the Black piece away from you 3 units.

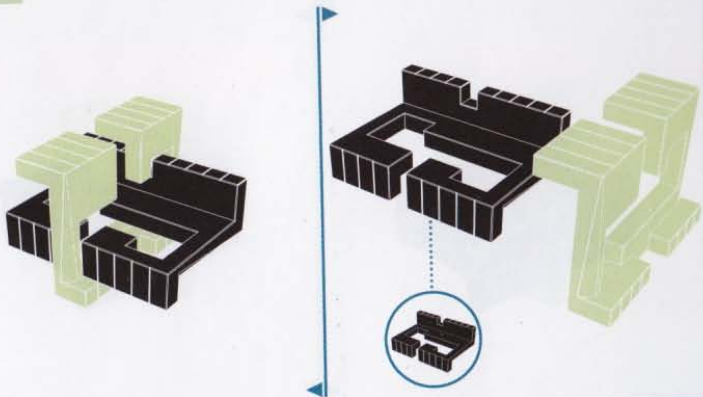


Move the Black piece toward you 3 of 4 possible units.

**STEP**  
**2**

**STEP**  
**37**

Move the Black piece left, out of the puzzle.



Move the Black piece left 6 units, into the Green piece.

**STEP**  
**1**

**PUTTING ZIG-ZAG KNOT™**  
**BACK TOGETHER**

Putting Zig-Zag Knot back together uses the same solution sequence as does taking it apart, except you follow the steps in reverse order.

To help you with inserting a new piece into the puzzle, we have highlighted an image of that piece in its correct orientation.

