

Doubled Missing Link



Made by J. A. Storer, 2007.
(plastic, 1.5" square, 7.1" long)

Custom made by adding a second double center portion to a standard *Missing Link* puzzle (using parts from three puzzles). Some 6-section *Missing Link* puzzles have been made where all four center sections are joined (so that the puzzle only rotates at the ends), but this is just a longer version of the *Extended Missing Link* puzzle (and is not any harder). This *Doubled Missing Link* puzzle can rotate in three places (the two ends and between the two double center portions), and so is a new puzzle that is a bit easier than the standard or extended versions, but still harder than the reduced version or a *Whip-It Tower* puzzle.

Here are what the other two sides and other end look like:



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How This Puzzle Was Made

The central spindle may differ between different Missing Link puzzles. The most common version that was sold in the U.S. has a solid plastic center spindle with bumps on it; start by getting three of one of these:



After removing the stickers (save them), one end cap, call it the *bottom*, has a recessed hole in which sits a flat end of the spindle, and in the other end, call it the *top*, the spindle comes to a point and locks with two prongs into a smaller hole.

Take apart three Missing Link puzzles. Force the top end off (ok if it breaks, it won't be used), slide off the sections, and slide the tiles out of the sections. All of the sections are identical; each has a *locking* side and *free* side (when two locking sides face each other, those two sections cannot spin with respect to each other).

Find a metal rod that has a diameter to match the holes in the sections, line up on the rod a bottom end, six sections, and a second bottom end, and mark where to cut so the length of the rod will be slightly shorter than the distance between the insides of the recessed holes of the end caps. Then drill and tap a 5/8 inch deep 6-32 threaded hole into each end of the rod (easiest to drill the holes on a lathe, and you can also use the lathe to face off the ends of the rods). The head of a 6-32 screw and a washer will fit in the recessed bottom end cap holes.

Screw one end cap on tight with a 1/2" 6-32 screw and washer. Add the 6 sections where the locking side of section 1 faces the cap, the locking sides of sections 2 and 3 face each other, the locking sides of sections 4 and 5 face each other, and the locking side of section 6 faces the other end cap. As you are adding caps, add tiles (you will have more of everything than you need except the center white tiles, so you can do some selecting for best fit, condition, and matching colors).

To attach the second end cap, start with a screw that is too long (e.g., 3/4 inch), screw it all the way in until it jams, and test how loose the puzzle fit is. Then repeatedly trim the screw a bit shorter and try again until the fit is just right. That is, because the rod is slightly shorter than the end to end distance, the fit is not determined by the length of the rod (another way to do this), but rather by how much the screw head / washer is protruding from the end of the rod when it is screwed in as far as it will go. The screws should jam in very tight so they will never move (but can still be removed in the future); can also add glue..

Finally place stickers on each end; you can glue them or use double sided tape.