Darryl's Dense Dozen (DDD)

In the 1970s, Bill Cutler published a complete summary of the solid 6-piece burrs that could be formed from "notchable" pieces. He presented a set of 42 pieces that would make all 314 solid, notchable puzzles. I wanted a smaller set. One that was easy to make (notchable) and also allows enough interesting puzzles to guide a user through puzzles of increasing difficulty. I call this set "DDD" for "Darryl's Dense Dozen" (or to my kids, "Dad's Dense Dozen"). The set is "dense" in that it makes a lot of puzzles:

There are 24 solid puzzles
There are 530 total puzzles (the additional 506 have empty hidden holes)
There are 42 puzzles with only one solution

I recommend you attempt the puzzles in the following order. These increase in difficulty. Puzzles with symmetries and multiple solutions tend to be easier. If a puzzle would fit together in an arrangement, but it's not possible to actually put the pieces together that way, the puzzle is harder. Also, the last one is a "Level 2" puzzle, meaning that removal of the first piece requires two moves, so putting it together is an added challenge.

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1.    A,B,C,E,K,L: 4 assemblies
2.    A,C,E,G,I,J: 2 assemblies
3.    A,E,F,G,J,L: 2 assemblies
4.    A,C,E,F,I,L
5.    A,B,G,H,J,L
6.    A,D,G,H,J,K
7.    B,C,F,G,H,I: only 3 hole puzzle with a unique solution
8.    B,D,F,H,I,K
9.    B,E,F,I,J,K
10.   B,C,D,E,F,K: only level 2 unique solution
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If you find these puzzles interesting, there is a wealth of information online, including many puzzles that are both challenging and interesting to solve. Some have historical significance in the puzzling community. Though Bill Cutler's computer search did find many interesting puzzles, some of the most interesting and challenging puzzles were discovered by human puzzle designers before Cutler's complete search was finished. There are many more difficult than the hardest one possible in this set. But, if you can solve all 10 above, you have a fighting chance at any of them.

Darryl Adams
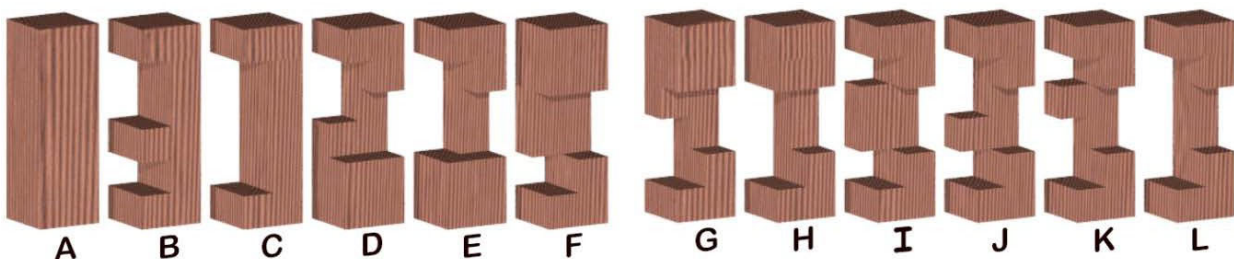
For the completeness enthusiasts, I've included the 42 puzzles with unique solutions. I have not included all 530 possible puzzles. Many are quite dull, having too many holes or no additional interesting solution. For example, consider this 12-hole puzzle: C, E, I, J, K, L. Just about any way you put the pieces together, they form a solution, and it falls apart too easily. I personally think the full list of 42 is somewhat repetitive but solving them all does provide good practice.

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16 puzzles with 0 holes:
A,C,E,F,I,L                                    4 puzzles with 2 holes:
A,B,C,H,J,K                                    A,D,E,I,K,L
A,B,C,H,I,L                                    A,D,E,H,J,L
A,C,E,F,J,K                                    A,G,H,I,J,L
A,B,C,E,J,K                                    A,E,G,H,K,L
A,B,C,E,I,L
A,C,F,G,J,L                                    1 puzzles with 3 holes:
A,B,E,G,J,L                                    B,C,F,G,H,I
A,D,E,G,J,K
A,D,E,G,I,L                                    3 puzzles with 4 holes:
A,B,D,H,K,L                                    B,E,F,G,I,J
A,B,D,E,K,L                                    B,D,F,H,I,K
A,D,G,H,J,K                                    B,C,D,E,F,K
A,B,G,H,J,L
A,D,F,H,K,L                                    3 puzzles with 5 holes:
A,D,G,H,I,L                                    B,C,E,F,I,J
                                               B,E,F,H,I,K
13 puzzles with 1 hole:                        B,E,F,H,I,J
A,B,C,H,K,L
A,C,E,F,J,L                                    2 puzzles with 6 holes:
A,B,C,E,J,L                                    B,F,H,I,J,K
A,C,F,H,J,L                                    B,E,F,I,J,K
A,B,E,H,J,L
A,D,E,G,J,L
A,B,E,H,K,L
A,D,E,H,J,K
A,D,E,H,I,L
A,E,G,H,J,K
A,E,F,H,K,L
A,E,G,H,I,L
A,D,G,H,K,L
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