Burr Puzzle

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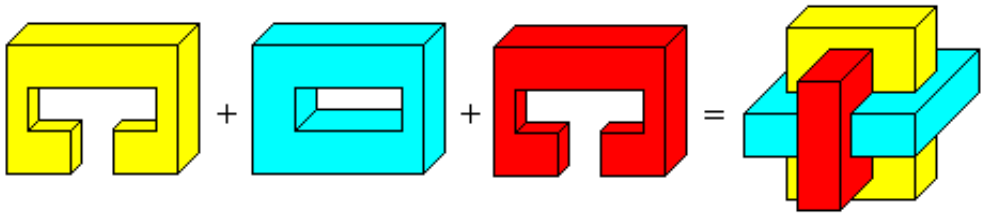
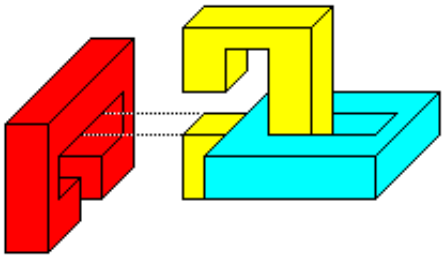
What is the Burr Puzzle?

The burr puzzle is a 3-dimensional puzzle.
The simpliest one has two pieces in form of a C and one piece in form of an O.
You have to fit them together, so that you have a "knot".

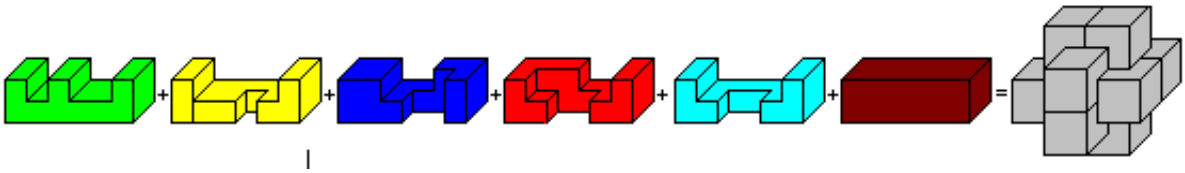


Solution:



Burr Puzzles of Six Pieces top

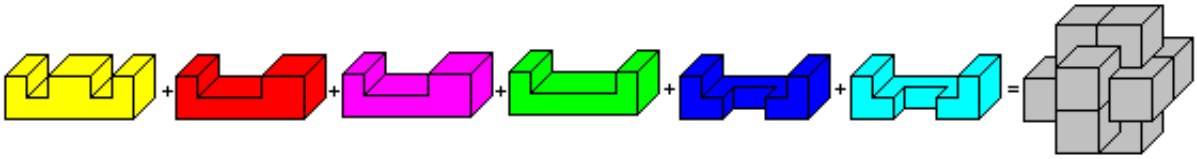
The standard burr has 6 pieces.



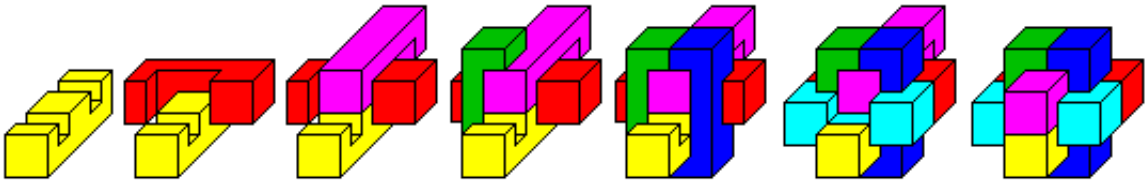
Solution:

A Burr Puzzle with an Empty Space top

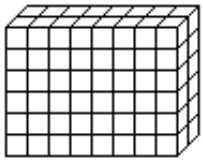
The following six-pieces burr puzzle is simpler. But it has one "mistake": There is an empty space inside.



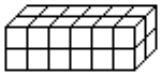
Solution:



Building of the Burr Puzzle top



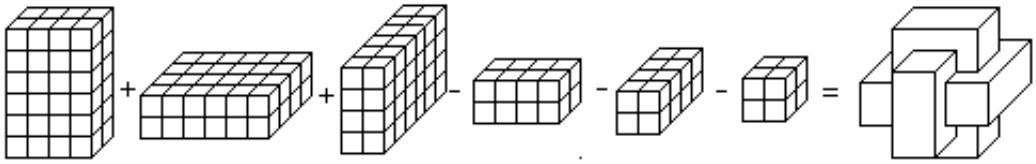
If you would like to make the knot with three pieces you need three blocks of wood with the measurements 8cm x 6cm x 2cm. The holes in the middle have the measurements 6cm x 2cm x 2cm.
The drawing on the left with the cubelets will help you.



You need 6 blocks of wood 6cm x 2cm x 2cm for the knot with six pieces.

Volume of the 6-piece Burr Puzzle top

The burr puzzle is built of cubelets. You have to count them.



48 + 48 + 48 - 16 - 16 - 8 = 104

Result: 104 cubelets form the burr.

References top

(1) Pieter van Delft /Jack Botermans: Denkspiele der Welt, München 1980 (1998 neu aufgelegt)
(2) Computer-Kurzweil, Spektrum der Wissenschaft, Dezember 1985
(3) Jerry Slocum/Jack Botermans: Geduldsspiele der Welt, Augsburg 2005 [ISBN 3-8289-4949-5]

Burr Puzzle on the Internet top

German

Peter Rösler
Holzpuzzles

Wikipedia
Mechanische Geduldspiele

English

asahi-net.or.jp
6 Piece Burr, Burrs Catalogue

Bill Cutler Puzzles, Inc.
Puzzles (Six-Piece Burrs, Rectilinear Burrs, Non-Rectilinear Burrs)

IBM Research
The burr puzzle site, (General higher level sample burr puzzles,

Rob's Puzzle Page
Interlocking Puzzles

Stewart T. Coffin
Larger (and Smaller) Burrs

Sue & Brian Young
Mr Puzzle Australia

Wikipedia
Burr puzzle, Mechanical puzzle

woodgears.ca
12 piece burr puzzle (12 identical pieces)

Comments top

The American puzzle designer Bill Cutler found out with the help of a computer, that you can build the burr puzzles with a stock of 25 pieces in 341 ways (2).

The Dutch professor J.H. de Broer has systematically designed 500 pieces 6x2x2 and put them together as a burr. He found 69 versions of this take apart puzzle (1).

Then mathematicians found with the help of a computer, that you can build burr puzzles with a stock of 369 pieces in 119 979 ways (3).

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