

MEGAMENGER

Overview: level-3 Menger sponge

The **level-3 Menger sponge** is the third iteration of the three-dimensional Menger fractal. It is made of 20 level-2 sponges arranged in the shape of a cube with holes through the middle in each direction. If you've already panelled all of the components making up your level-2 sponge, you will need 4608 labelling cards to cover the remaining outside faces.

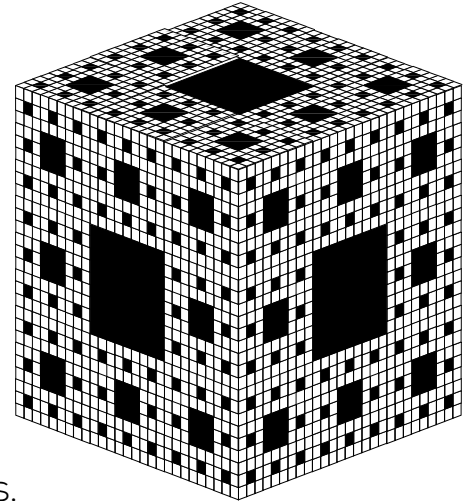
Number of level-2 sponges in each level-2: 20

Number of cubes in each level-2 sponge: 8000

Total number of business cards: 48000

Number of cards needed to panel the outside, if built from pre-clad level-2 sponges: 4608

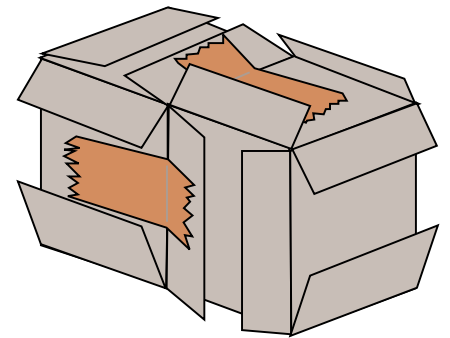
Our recommended method for constructing the level-3 sponge is to take 20 existing level-2 sponges, which have already been panelled on the inside faces, and join them together, then panel the outside.



Important points to note:

- The level-2s should be joined together securely - you should be able to tuck in all the tabs around the outside, but you may need to use tape to connect the cubes together to make it stronger. Here's a suggested way of taping the cards which still allows you to panel - make sure you use strong clear or white tape.

- The top layer of cubes should be joined together first, in a ring of 8, then lifted on top of the rest of the sponge. The unsupported cubes at the top will need to be securely attached together - and bear in mind that if you only tape the cubes at the joins, they may pull apart further along the structure.



If you'd prefer to construct your sponge without glue or tape, there is a method developed by Dr. Jeannine Mosley at the Institute of Figuring, which uses a selection of different tripod units. The method can be found at bit.ly/mengertripods. Dr Moseley is the first known person to have constructed a level-3 sponge.

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