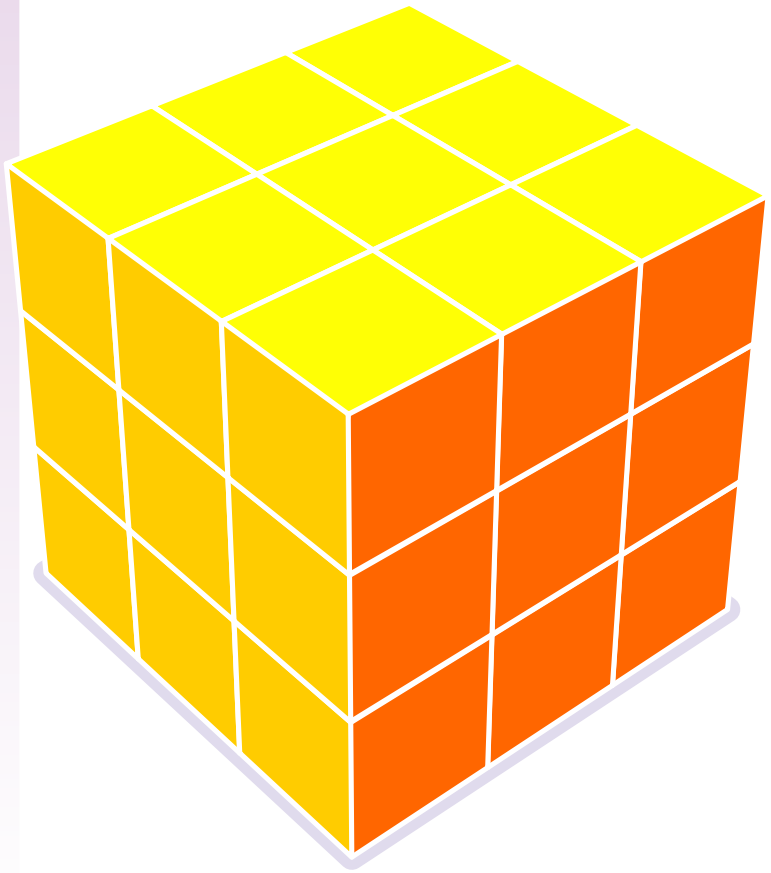

Cube Cuts

after Martin Gardner

A cube, three units on a side, has to be cut into 27 one-unit cubes. It can be done quite easily by making six cuts through the cube, keeping the pieces together in the cube shape.

The question is whether this number of necessary cuts can be reduced by arranging the pieces after each cut?

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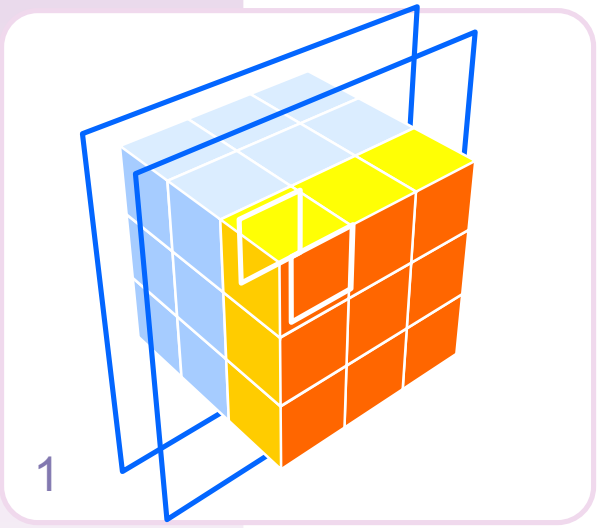

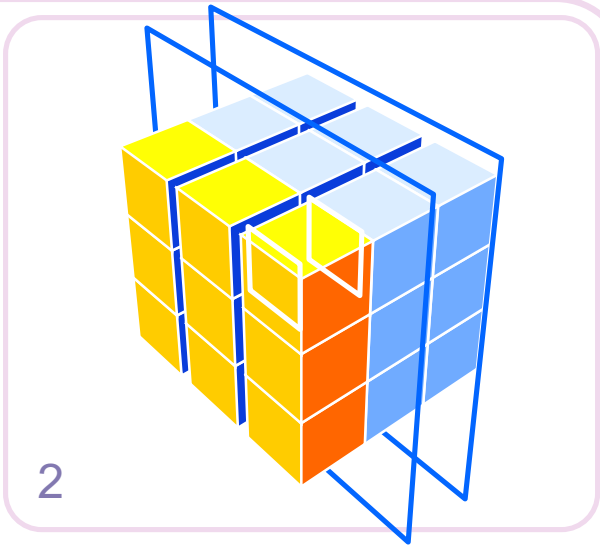

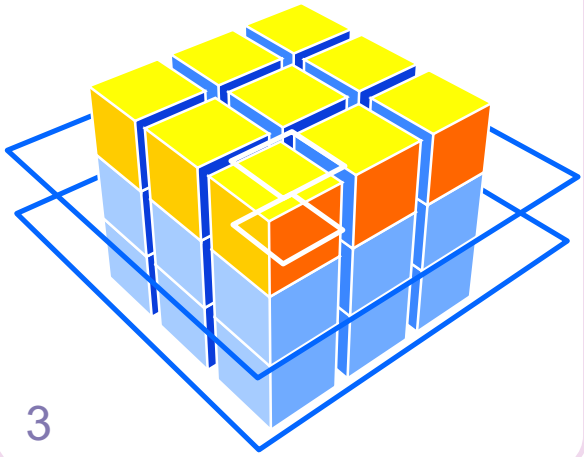

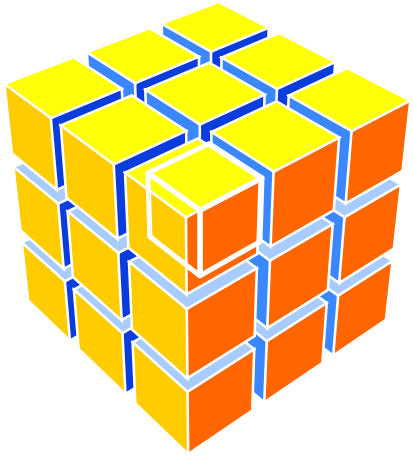

Cube Cuts (solution)

There is no way to reduce the cuts to fewer than six. It becomes quite clear when we realize the fact a cube has always six sides. Since all the cuts are straight - one side at a time - to cut the one-unite cube at the center of the bigger cube exactly six cuts have to be done.

The three pairs of parallel cuts which form each time the respective opposite sides of the center cube are shown in the illustration.

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