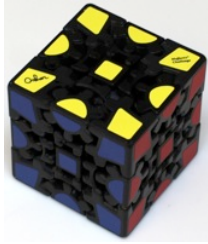
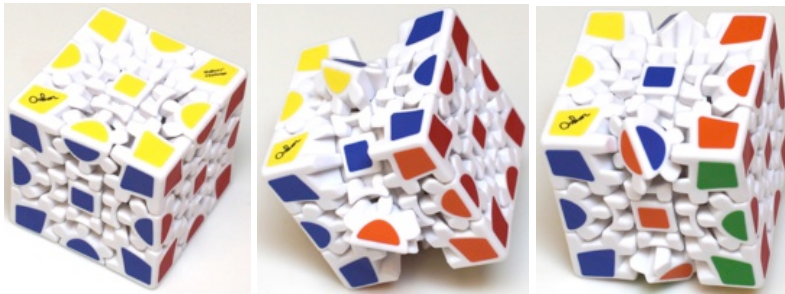


Gear Cube



*Invented by Oskar van Deventer, purchased from Mefferts, 2010.
(plastic, 2.3 inches)*

Looks like a complicated version of *Rubik's Cube*, but is actually much easier to solve (see the *Gear Cube Extreme* for a harder to solve version). Here is the puzzle solved, the right face rotated 90 degrees, and the right face rotated 180 degrees:



Call the operation of rotating a face 180 degrees a *flip*; it is the *only* thing you can do:

- A 90 degree rotation of a face locks up the puzzle.
- Middle layers can only be manipulated by flip operations.
- A flip cycles the adjacent middle layer by 90 degrees and rotates its 4 gear edges by 60 degrees each; 3 flips returns the adjacent middle layer to flat, and 12 flips returns you to exactly where you started. A flip also has the effect of reordering two of the gear edges in each of the other two middle layers.
- Centers can move around, but the 4 gear edges of a middle layer never leave that layer.

Jaap's Page presents a solution. Here is an approach that requires essentially no memorization:

1. Restore puzzle to be flat (easy - do flips as needed).
2. Solve the corners (easy - faces cannot rotate 90 degrees).
3. Use step A to solve as much as possible, use Step B, and repeat until solved (repositioning the cube as appropriate):
 - A. Flip the right face clockwise 6 times.
(Exchanges front/rear and top/bottom of the vertical center layer).
 - B. Flip the bottom face clockwise, flip the right face twice clockwise, flip the bottom face counter clockwise, flip the right face twice counter clockwise.
(Exchanges front/rear of vertical center layer and left/right centers.)

Further Reading

Jaap's Page, from: <http://www.jaapsch.net/puzzles/gearcube.htm>