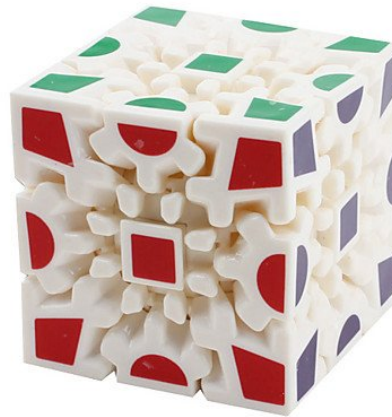


Gear Cube



The Gear Cube is like a 3x3x3 Rubik's Cube where all the edge pieces are gears. When an outer layer turns 180°, each adjoining edge piece turns 300° and moves a quarter of the way around the cube. At first sight, the puzzle looks intimidating. But since all moves are restricted to half turns, it is actually easier to solve than the ordinary Rubik's Cube.

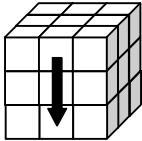
Phase 1: Solve the corners.

Find two of the corner pieces that should be adjacent (they have two colours in common, e.g. red and blue). Do any moves needed to make them match. This should be intuitive. Once two red corners are matched up, the other two red corners should be matched up too, but maybe somewhere else in the cube. Bring the four red corners together so that one face is solved. Continue until all the eight corner pieces are solved.

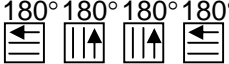
Phase 2: Position the edge pieces.

Look at the edge piece at the upper-front location. Do one of the following to move it to its correct position:

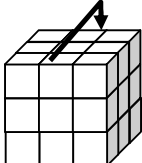
move to an adjacent edge on the same face:




180° 180° 180° 180°



move to the diagonally opposite edge:



180° 180°



If any further edge piece is incorrectly positioned, then hold the puzzle with that edge piece at the upper-front location, and do the above. Repeat until all edges are positioned correctly.

Phase 3: Orient the edge pieces.

If any edge piece needs to be twisted, hold the puzzle with that edge piece at the upper-front

location, and repeat $\overset{180^\circ}{\begin{array}{|c|} \hline \uparrow \\ \hline \end{array}}$ until it is oriented correctly. Do likewise for all edge pieces. In general, turning an outer layer two complete rounds move the centre edges pieces one round around the cube and twists them by 120°. So to fix the orientation of an edge piece, at most four complete turns of the outer layer are needed.