**4x4x4 Rubik's Cube (also known as Rubik's Revenge or the Master Cube)**

The difference between this cube and the 3x3x3 Rubik's cube is that the centre pieces do not stay at one place and so cannot be used to identify the colour of each face.

**Phase 1: Solve the centres**

1. Form pairs of the same colour and move them to the correct face. To avoid messing up other faces, join the pairs as follows:

2. If you just wish to move one piece, use the following algorithm:

3. Before starting on the next face, look at the corner pieces to figure out how the colours are related to each other. Repeat until the centres of all six faces are solved.

**Phase 2: Pair up the edges**

1. Look at the unmatched edge piece at the front-upper-left position. Find the edge piece with the same colour and use face moves (not slice moves, so as not to disturb the centre pieces and the completed paired edges) to move it to the front-down-right position.

2. Now look at the edge piece at the front-upper-right position. Find the edge piece with the same colour and use face moves to move it to the front-right-down position. Then apply the following algorithm to bring the two pairs of edge pieces next to each other:

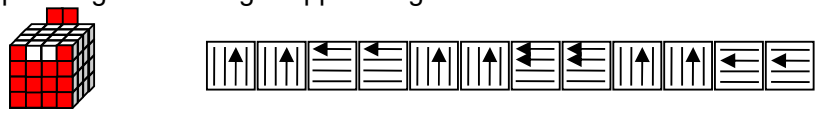
Note: The last 3 turns can be left out.

3. After almost all the edge pieces have been matched, you may not be able to pre-position 2 pairs of unmatched edges as above. Then just position 2 edges pieces with the same colour as follows and apply this algorithm to bring the two edge pieces together:

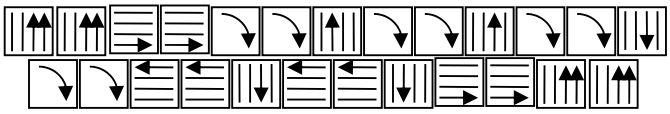
4. Repeat until all 12 edge pairs have been matched.

**Phase 3: Solve the cube**

1. Solve the cube as if it is an ordinary 3x3x3 cube.
2. You may come across situations that are not possible on the normal Rubik's cube: two swapped 'edges' or a single flipped 'edge'.



Apply 3x3x3 Rubik's Cube moves on the upper layer to change this to the above configuration.



http://www.jaapsch.net/puzzles/cube4.htm