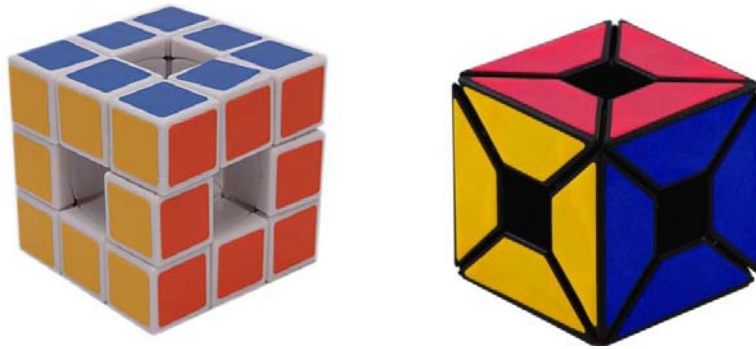**Void Cube / Edges Only Void Cube**

The Void Cube is like an ordinary Rubik's Cube, but with all the centre pieces removed. We can poke a finger right through the centre of the cube. The spindle in the middle of an ordinary Rubik's Cube has been replaced by a mechanism that allows the pieces to turn with respect to one another without falling apart.

The Edges Only Void Cube is a simplified Void Cube that removes everything except the edges from an ordinary Rubik's Cube. It nicely complements the $2 \times 2 \times 2$ Pocket Cube that removes everything except the corners.

The Void Cube can be solved using the same moves that are used to solve the ordinary Rubik's Cube. Since the centres are missing, we use the edges and corners to determine how the colours are arranged with respect to one another.

At the last stage of solving these two cubes, there is a 50% chance that we will end up with a situation where we need to swap two edge pieces. This situation is impossible on an ordinary Rubik's Cube because it involves a change in parity. This is called the Void Cube Parity Problem. We can fix the parity as follows and continue from there:
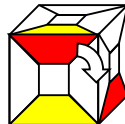
   $M^2UMU'M^2$

A more direct solution is to do the following to swap the upper-front and upper-right edges:

   $U'F^2UMU'F^2U^2MU'M'$
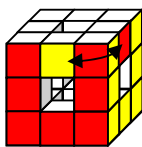
For the Edges Only Void Cube, we use the edges to determine how the colours are arranged with respect to one another. All the ordinary moves can be used, but the sequences are often shorter because there is no need to worry about messing up the corners. For example:

To solve the middle layer: $RU'R'$

To correct parity error: $M^2U (M^2U')^2$

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