

## Optimising the Beginner's Method

Supplementary to video tutorials at

<https://www.cubeskills.com/tutorials/optimising-the-beginners-method>

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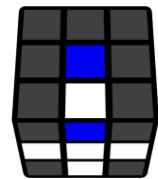
Images sourced from Conrad Rider's VisualCube - <http://cube.crider.co.uk/visualcube.php>

### First Layer Cross

A simple way to shave off time when doing your cross is to learn colour neutrality - being able to solve the cube starting with any of the six colours. In being able to start on any colour, you can identify the easiest cross to solve from six different possibilities, and improve the speed of your cross.

Another good habit to learn is to solve the cross on the bottom face. This means that you will be able to avoid the cube rotation between solving your cross and first layer corners.

Fixing a flipped cross edge (on bottom face)



$F' D R' D'$

### First Layer Corners

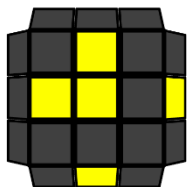
One simple intuitive tip for making efficiency gains during your first layer is to choose the easiest corner to solve from any given situation.



In the example on the left, there are two visible corners which belong in the bottom layer - the white/blue/red corner in the front right, and the white/red/green corner in the back right position. We know that the algorithm to insert a corner with its cross colour sticker pointing upwards is significantly longer than the other two cases, so here it makes sense to choose to solve the white/blue/red corner piece.

### Last Layer Edge Orientation

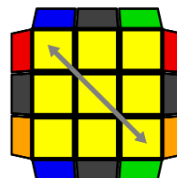
The following algorithm orients two adjacent edges.



$F (U R U' R') F'$

### Last Layer Corner Permutation

The following algorithm is used to swap two diagonal corners, in cases where there are no two matching corners.



$(R' U L') U^2 (R U' L)$   
 $(R' U L') U^2 (R U' L)$

### Last Layer Edge Permutation

The following algorithms are used to cycle three edges in anticlockwise and clockwise directions, respectively. You will already know the first algorithm from the Beginner's Method tutorial.



$(R U') (R U) (R U)$   
 $(R U') R' U' R^2$

$(R^2 U) (R U) (R' U')$   
 $(R' U') R' U R'$

