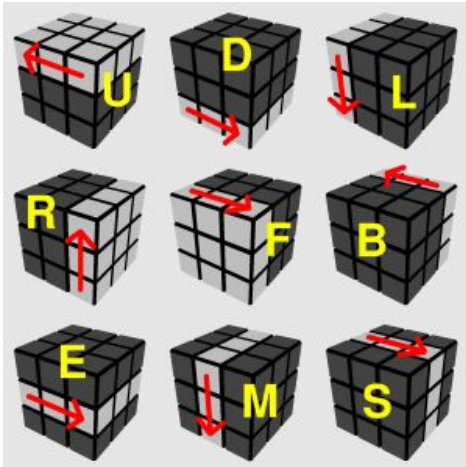# Michigan Cubing Club
Beginner Method

Cross, First Layer, Second Layer, EO, CO, CP, EP

Notation:

If X is U, D, L, R, F, B, E, M, or S:
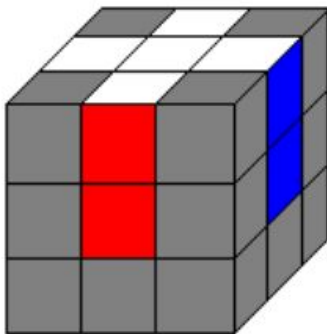
X means turn clockwise

X' means turn counterclockwise

1. Cross

Make a cross on any color (instructor may ask cross to be made on white or yellow for their convenience). **This guide will be based on white cross.**
Goal:

The colors on the edges of the four cross pieces match the center colors on both sides.
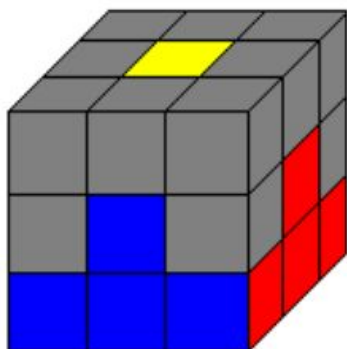
This step is intuitive. No algorithms required.
Tip: Place an edge piece that has white on it on the yellow face. Then, match the other color to the corresponding center and rotate 180°.
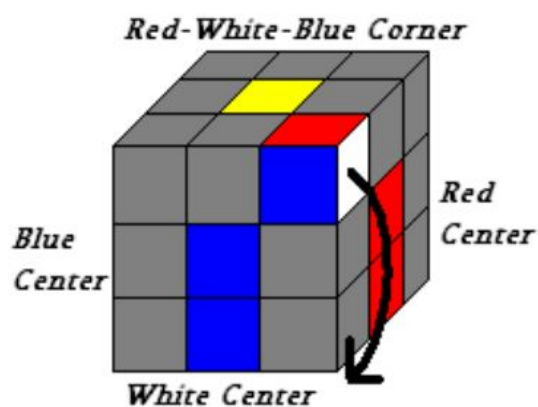**From now on, white is on bottom and yellow is on top.**

2. First Layer

Goal:

This step is completed when the white layer (not White face) is solved.

Find a corner piece that has white on it on the top layer and find where that corner should be placed for it to be solved. Turn the top layer until that corner is directly above where it needs to go.
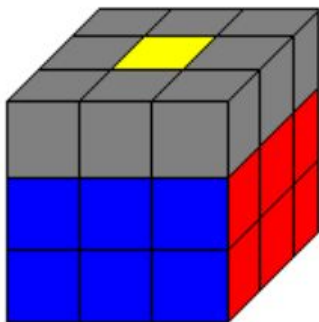

Apply this algorithm (1-5 times) until that corner is solved: **R U R' U'**

If there are no white corners on the top layer, apply the algorithm to a corner that is in the wrong place to move that corner into the top layer.
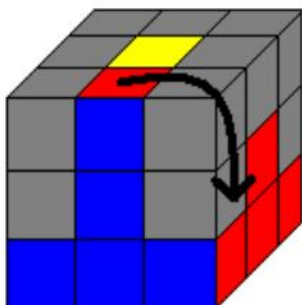
3. Second Layer

Goal:

This step is completed when the first two layers are solved.

Find an edge piece on the top layer that does not have yellow on it. Then, match the color of that piece with its corresponding center and determine whether it needs to be inserted to the right or to the left, based on the other color on the edge.
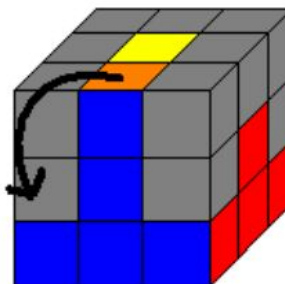
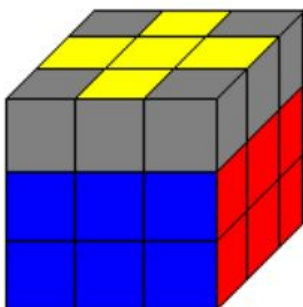If it goes to the right:
U R U' R' U' F' U F

If it goes to the left:
U' L' U L U F U' F'

If all the edges on the top layer contain yellow, use the algorithm to move an unsolved edge to the top layer.
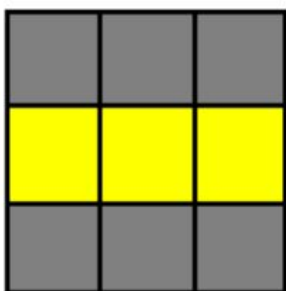
4. Edge Orientation

Goal:

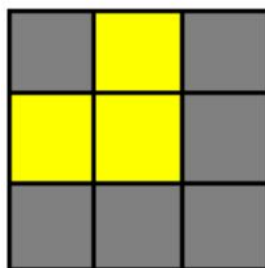This step is completed when there is a yellow "cross" on top.

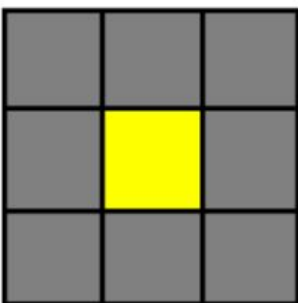There are 4 possible cases (ignore the corners).
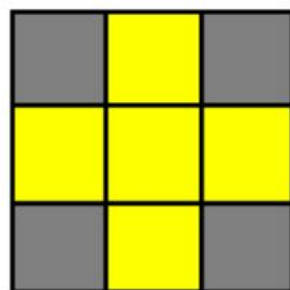
Case 1

F R U R' U' F'

Case 2

F R U R' U' R U R' U' F'
(Case 1 twice)

Case 3

F R U R' U' F' U2
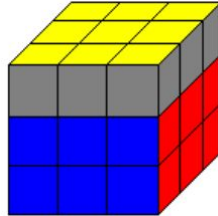**F R U R' U' R U R' U' F'**
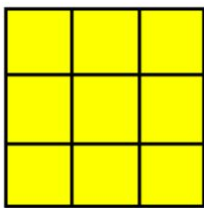**(Case 1 + Case 2)**

Case 4

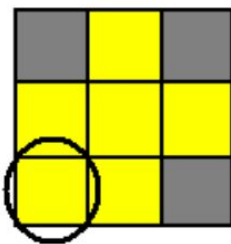**Solved**

5. Corner Orientation

Goal:

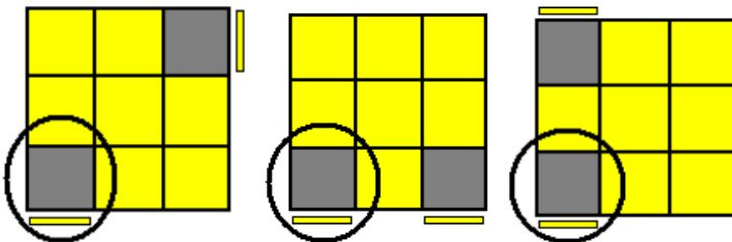This step is completed when the top layer is all yellow.

Spam this algorithm until the yellow face is solved: **R U R' U R U2 R'**

*Case 1: Apply the algorithm from this angle (1-2 times) if you have this case*

If ¾ corners are not oriented, place the correctly oriented corner on the bottom left.

Case 2: Apply the algorithm from the shown angles to get a Case 1

If 2/4 corners are not oriented, place the unoriented corner with yellow facing towards you on the bottom left

*Case 3: Apply the algorithm from the shown angles to get a Case 1*
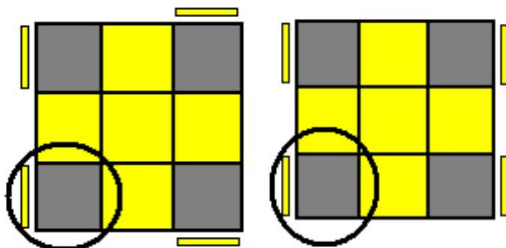
If none of the corners are oriented correctly, place an unoriented corner in the bottom left with the yellow facing the left.

Steps 4 and 5 together are called OLL (Orientation of the Last Layer). There are more algorithms you can learn for step 5. Those algorithms can be found in the Intermediate Method.
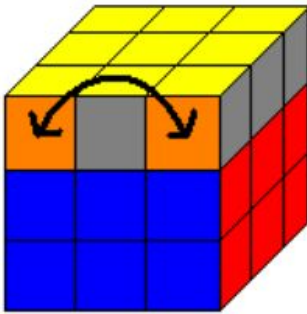
6. Corner Permutation

Goal:
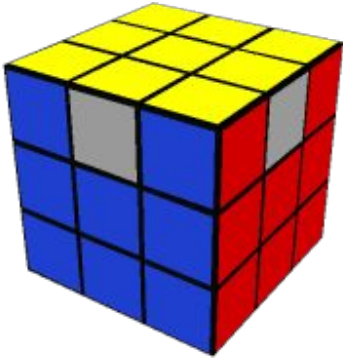
This step is completed when the corners of the last layer are solved.

Look at the corners. If there are two adjacent corners are the same color, put them on the left and choose an algorithm (they both do the same thing to the corners):
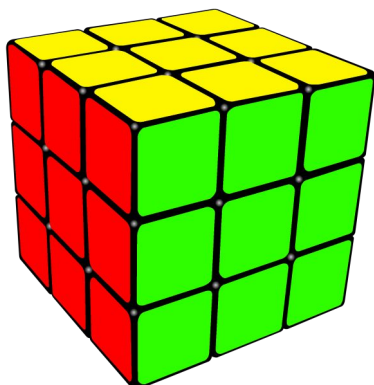
R U R' U' R' F R2 U' R' U' R U R' F' (T perm)
R U R' F' R U R' U' R' F R2 U' R' (J perm)

If there are no 2 corners of the same color, apply the algorithm from any angle to make 2 adjacent corners of the same color.
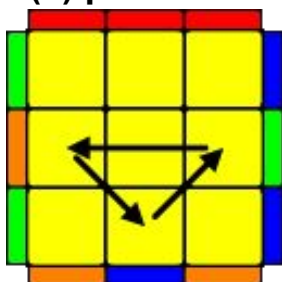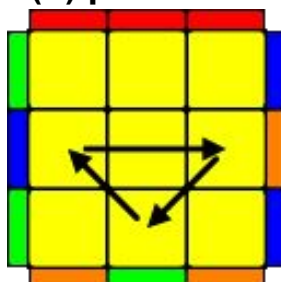
7. Edge Permutation

Goal:

Solved Cube :D

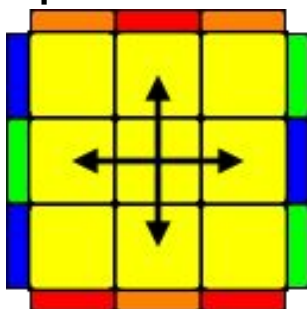Look at the edges. There are 4 possible cases (excluding solved):

U(a) perm

R U' R U R U R U' R' U' R2

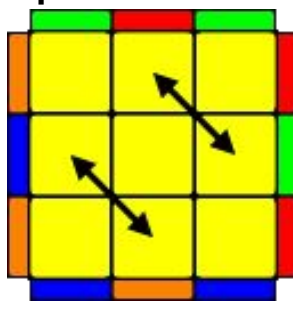## U(b) perm

R2 U R U R' U' R' U' R' U R'

H perm

M2 U' M2 U2 M2 U' M2

Z perm

M2 U' M2 U' M' U2 M2 U2 M'

Steps 6 and 7 together are called PLL (Permutation of the Last Layer). There are more algorithms to learn for both steps. Those algorithms can be found in the Intermediate Method.