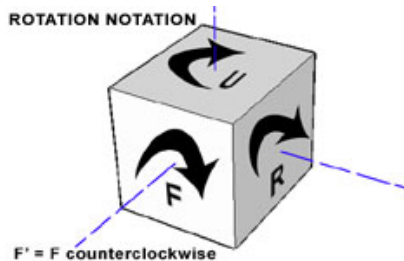


**Step 1:**



**Learn the language/notation.** For example **F** means rotating the front of the cube facing you clockwise (90 degrees). While **F'** means rotating it counterclockwise. **F2=F'2** means rotating it twice (doesn't matter which direction, result is the same). The L, D and B face rotations are of course opposites of R,U and F faces.

**Step 3:**

**Pairing** the bottom corner with the correct edge of the 2nd layer on the top layer and then slot it in the correct place

- This can be done intuitively solving the first two layers at the same time this in combination with the cross in step 1 is called the Fridrich Method
- Or by first placing the bottom corner correctly and then placing the edge using one of the following algorithms:



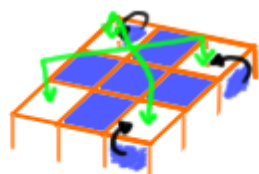
$U'F'U'FURUR'$



$URUR'U'F'U'F$

**Step 4b:**

After the cross the goal is to form a **fish** (flip one corner) and then to turn the 3 remaining corner cubes facing with the correct color up. For that we use the following algorithm that flips the corners as shown in the figure:

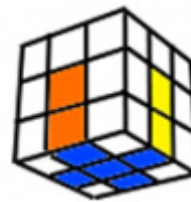


$(RUR') U (RU2R)$

**Hint:** You may have to perform it multiple times to get the fish pattern (not more than 3x) make sure that before you perform the correct side is in front of you so you'll get the right flips.

**Step 2:**

**Form a cross** on the bottom layer, matching the edge color to both the bottom and the side middle cube. This step is intuitive and gets faster with practice.

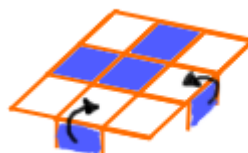


**Hint:** the center cubes are fixed, so it's all rotational movement. Also: don't be afraid to rotate a solved part out of the way, in order to get another piece correct. Just make sure to move it back afterwards.

**Step 4a:**

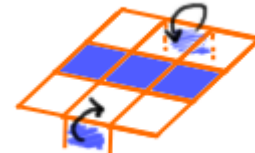
**Orientation Last Layer (OLL)** Goal is to form the cross on the top layer, depending on the starting position use the following algorithms:

flip adjacent edges



$FUR (URF)'$

flip opposite edges



$FRU (RUF)'$

If you don't have one of the two patterns as starting position perform one of the two algorithms above to flip some edges to get one of the patterns.

**Step 5:**

**Positioning of the Last Layer (PLL)**, now that all cubes of the top layer are facing the right direction the following algorithms can be used to position the edges and corners correctly. Performing them backwards rotates the cubes the other way around:

**Edge rotation**



clockwise

$(R2URU) (RURUR)' UR'$

backwards = counter clockwise

$RU' (RURUR) (URUR2)'$



**Corner rotation**



$R2 B2 (RFR)' B2 (RF'R)$