

Some basics

- The cube has six sides
- The centre pieces never move (eg: white is always opposite yellow)
- Pieces with two faces are called “edge pieces”
- Pieces with three faces are called “corner pieces”
- The cube has three “layers” – the top layer, middle layer, and bottom layer. We’ll solve the cube one layer at a time

Step 1: the daisy

- Find the side with a yellow centre, and rotate the cube to put it on the top
- Get four white edge pieces around the yellow centre piece
- Don’t worry if there are other white pieces on the top – this is fine, as long as the four edges on the top are white

Step 2: the white cross

- Looking at one side of the cube, rotate the bottom and middle layers so that the centre piece on that side matches the with the other colour on the white edge piece that’s part of the daisy
- Rotate that side of the cube 180 degrees, to put the white edge on the bottom
- Repeat that for the other four sides
- At the end, you should have a white cross on the bottom; and on all four sides, the other face of those bottom white edge pieces should match with the centre piece

Step 3: solve the bottom layer

We’ll use moves called the “left trigger” and “right trigger” to solve the bottom layer:

- For the left trigger, rotate the left side of the cube away from you, use your left index finger to rotate the top of the cube towards you, then rotate the left side back towards you
- For the right trigger, do the same on the right side

To solve the bottom layer, we’ll use these moves to place white corner pieces in to the bottom layer. Follow these steps:

- Look in the top layer for any corner pieces with a white face on the side
- Rotate the top layer so that the other side face of those corner pieces matches with the centre piece
- Use the left or right trigger, depending on which side the white face is on, to move the white corner in to the bottom layer
- Repeat until there are no more pieces with white sides in the top layer

You’ll sometimes find that you have white faces either in the bottom layer, or on the top. To solve these:

- For a white face in the bottom layer, use the left or right trigger to move the piece to the top layer; if you’ve used the proper trigger, then the white face should be on the side (otherwise, it might end up on the top – that’s okay too!)

- For a white face on the top, rotate the top layer so that the piece is over the top of a non-white face on the bottom, then use the left or right trigger two times; this will reorient the piece so that the white face is on the side in the top layer

Then, you can solve these as above. Once you're done, the bottom layer will be solved!

Step 4: solve the middle layer

To solve the middle layer, we need to move the proper edge pieces to the proper spots on in the middle layer. Here's how to do it:

- Look at the top layer, and find an edge piece that has no yellow face on it
- Rotate the top layer so that the side face of that edge piece matches the centre piece; you should see an inverted T shape of that one colour
- Look at the colour on the top of that edge piece; it should match the centre colour on either the left or the right side of the cube
 - If it matches the colour to the right, rotate the top face clockwise, then use the right trigger
 - If it matches the colour to the left, rotate the top face counter-clockwise, then use the left trigger
- Doing that move will have displaced a white corner from the bottom; use the same technique from step 3 (match the other side of the white corner to the centre colour, then use left or right trigger) to put that piece back in the bottom
- Repeat those steps until the middle layer is solved!

You might get stuck if you can't find any edge pieces on the top layer that don't have yellow on them. In that case, find an edge piece in the middle layer that doesn't have any yellow sides, use the left or right trigger to move it to the top layer, then re-solve the displaced white corner.

Step 5: algorithms

To solve the top layer, we'll need to use algorithms – predefined sets of moves that perform a specific action. Each move is a rotation of a certain face of the cube, and is given a letter corresponding to that face:

- F: the side of the cube that faces toward you
- U: the top ("up") side of the cube
- L: the left side of the cube
- R: the right side of the cube

Moves are always clockwise *as if that side was facing you*, unless denoted with an apostrophe ("prime"), which indicates a counter-clockwise rotation. For example, we could write the right trigger as R U R' and the left trigger as L' U' L.

Step 6: the yellow cross

We're going to solve the top layer of the cube now, and we'll start by making a yellow cross on the top face. As with the daisy before, don't worry about any yellow faces in the corners of the top face – just look at the centre (which will already be yellow) and the four edge pieces on the top. To do this, we're doing to use the algorithm:

F U R U' R' F'

If you're lucky, you might already have a yellow cross! If not:

- If you have just the yellow centre, apply the algorithm once; you should get a line of three yellow faces in a row
- If you have three yellow faces in a row, rotate the top layer so that the line runs from front to back, then apply the algorithm again to get a yellow L shape
- If you have a yellow L shape, rotate this so that it becomes a backwards L in the top left corner, then apply the algorithm one last time

Step 6: completing the yellow face

Once you have the yellow cross, we'll use a new algorithm to first make a yellow "fish", and then to completely solve the yellow face. The new algorithm is:

R U R' U R U² R'

To get the yellow fish, rotate the top layer so that there's a yellow face on the left side corner closest to you, then use the algorithm. This should give you a yellow "fish" shape. If there are no corners with yellow faces in the right position, just apply the algorithm and look again. If there are extra yellow pieces on the top, rotate the top layer so that they're on the right side, then apply the algorithm again. Keep going until you get the yellow fish.

Once you have the yellow fish, rotate the top layer so that it's pointing to the left front corner, then apply the algorithm again. You might have to do this one more time (rotating and applying the algorithm), but after that, the yellow face should be complete.

Step 7: solve the corners

Time for another algorithm, which will help us solve the corners:

L' U R U' L U R' R U R' U R U² R'

Yep, the second half of that is the same as the algorithm above! To use this algorithm, first try to find one side where the corners are solved; you can rotate the top layer around if you need to. If you can't find one, don't worry – run the algorithm above, and one should appear.

Once you've found your side with solved corners, rotate the cube so that side is on the left, then run the algorithm again. With any luck, the corners on all four sides will now be solved.

Step 8: solve the edges

Time for another algorithm, which will swap the edge pieces around for us. There are two versions of this algorithm depending on which way we need to swap the edges around.

$F2 (U \text{ or } U') R' L F2 R L' (U \text{ or } U') F2$

To apply this algorithm:

- See if you have one side that's already completely solved. If you do, rotate the cube so it's at the back (ie: facing away from you). If not, run the algorithm once (either variant is fine) and you should have one solved side.
- Run the first step of the algorithm (F2), then look on both sides to see which side has the edge piece that matches the colour of the side facing you. Rotate the top layer (U or U') to move that edge to the front
- Run the middle part of the algorithm (R' L F2 R L')
- Rotate the top layer the same way as before
- Run the final step (F2)

You should have a solved cube!