How To Solve the 4x4 Rubik's Cube

If you're making a tutorial website, it's important to know that the **4×4 beginner method** is basically:

1. White Center
2. Yellow Center
3. Partial White Cross
4. Remaining Centers
5. Edge Pairing
6. 3×3 Stage (with Parity Cases)

Understanding the 4×4

A 4×4 has:

- 24 center pieces
- 24 edge pieces
- 8 corner pieces

Unlike a 3×3:

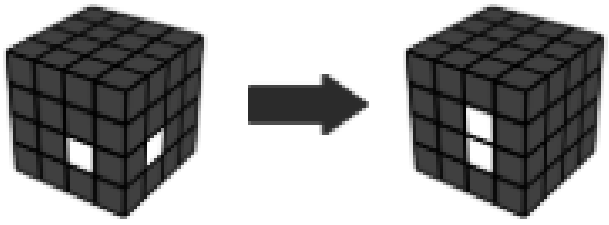
- Centers can move
- Edges come in matching pairs
- There is no fixed center to determine colors

Before solving, you should know the standard color scheme:

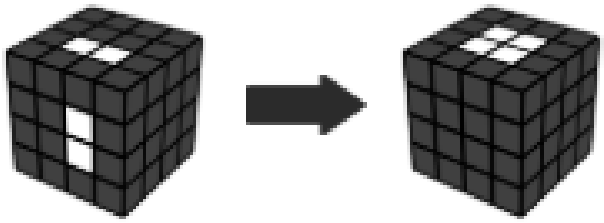
- White opposite Yellow
- Blue opposite Green
- Red opposite Orange

Step 1. White Center

Pair up 2 white center pieces to form a bar.



Build another white 1×2 bar elsewhere on the cube, then combine the two bars to complete the white center.



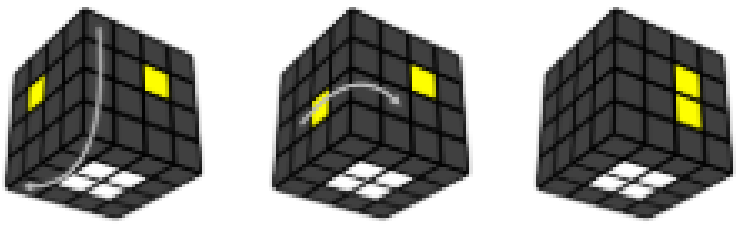
This step is completely intuitive. Spend some time experimenting with the cube to learn how the pieces move and fit together.

Step 2. Yellow Center

Hold the white center on the bottom, and make a yellow center bar anywhere on the cube.

Make sure to fix the white center if you ever destroy it.

Examples:

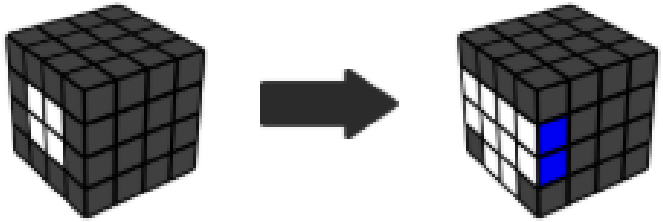


If the yellow bar is not on the top face, move it onto the top by doing this:

Make another yellow bar, and then place it under the first bar to move it to the top:

The tutorial video and example solve videos above show some trickier cases for this step.

Step 3. Partial White Cross



This step will correctly solve three of the four cross edges while keeping the colors in the proper order.

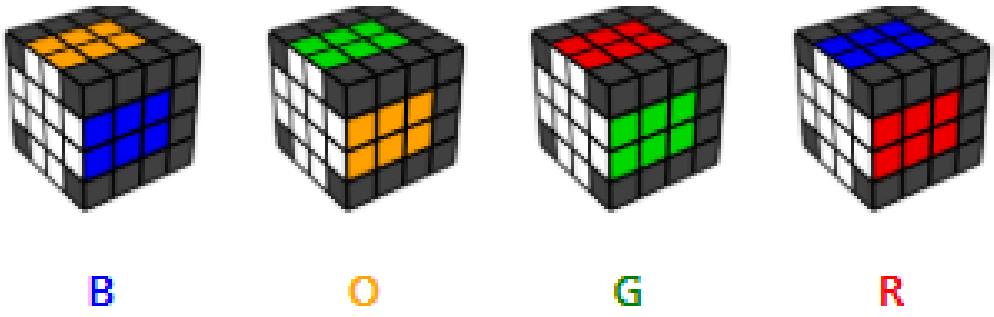
Hold the cube with the white center on the left.

The correct color sequence moving clockwise around the cube is:

Blue → Orange → Green → Red (BOGR)

Use this order to check that your cross pieces are aligned correctly.

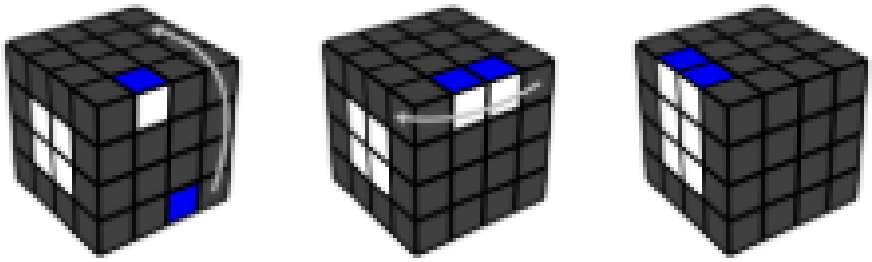
Example of a completed partial cross with the centers solved:



Find 2 white edge pieces that have the same colors on them.

Put one in the left slice layer, and one in the right slice layer (the slice layers are the middle 2 layers).

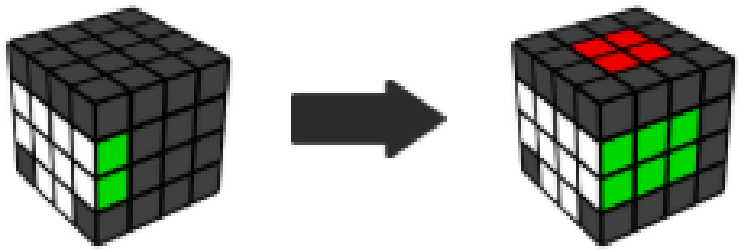
Join them, and add it to the cross.



Repeat this step for a total of 3 (not 4) cross pieces solved, and follow the color scheme shown above.

Be careful not to destroy other cross pieces or the 2 solved centers.

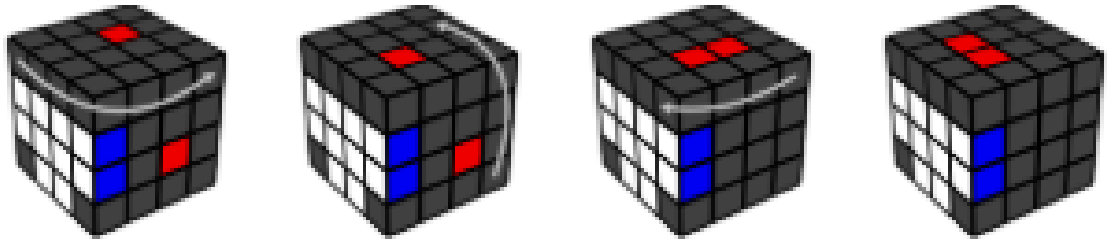
Step 4. Centers



Make 1 center bar of any color, and turn it to be vertical.

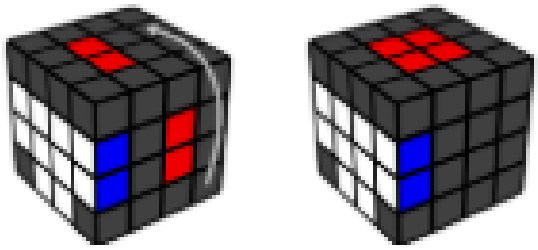
Be careful not to destroy the partial cross (tips explained in the video tutorial).

If you have completed any other centers already, make sure you also fix them any time you break them (just like fixing the white center when making the yellow center).

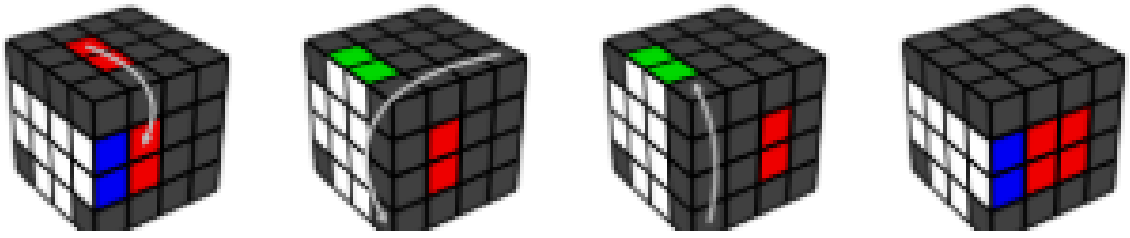


Make another center bar of the same color.

If this is the first center you've made, you can just join them together



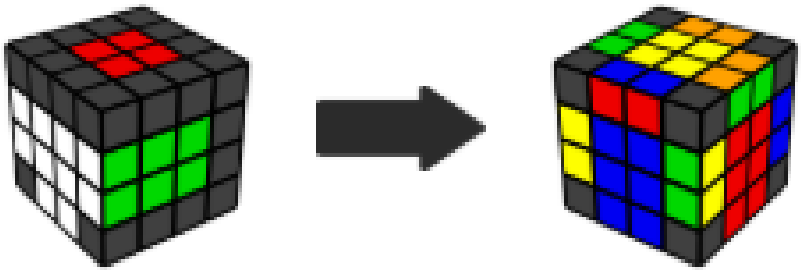
If other centers have already been made, put the 2 bars on the same side to join them:



Solve the rest of the centers.

Some trickier cases for the last 2 centers are shown in the example solve video above.

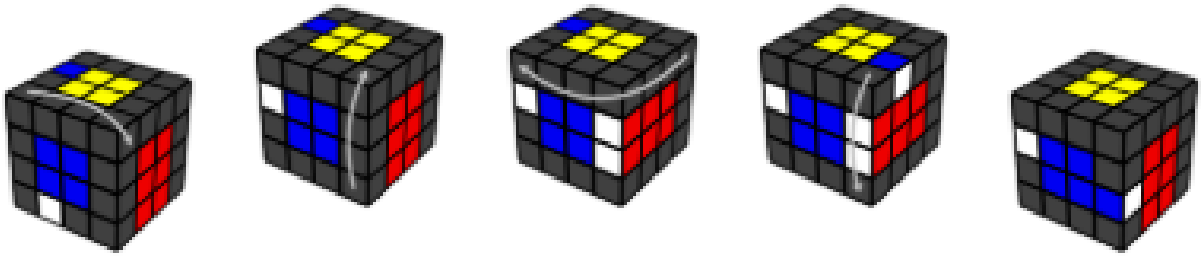
Step 5. Edge Pairing



Hold the cross on the bottom, with the unsolved part at the front.

Look for the last 2 white edge pieces. If one is in the bottom, turn the front so that it's not.

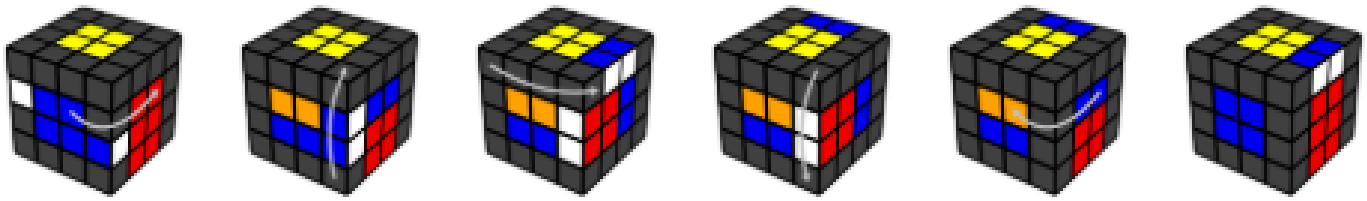
Put both white pieces in the front/left and front/right without breaking the partial cross.



Each piece is either on the top or bottom slice layer.

Case 1: **If they are in different slices:**

- Join the pieces
- Replace it with an unsolved edge pair
- Fix the centers



Case 2: **If they are in the same slice:**

- Slice piece 1 towards piece 2.
- Flip piece 1 (with the flipping algorithm: R U R' F R' F' R)
- Fix the centers

Insert the cross edge into the bottom layer to complete the cross.

Solve the rest of the edge pairs one at a time using the same method as for the first edge. If you are ever confused, you can watch the example solve video above as it shows the full process.

6. 3×3 Stage (with Parity Cases)

From here you can just solve it like a normal 3x3. The only difference is that you can get parity for OLL and PLL

OLL Parity Algorithm:

Rw U2 x Rw U2 Rw U2 Rw' U2 Lw U2 Rw' U2 Rw U2 Rw' U2 Rw'

PLL Parity Algorithm:

2R2 U2 2R2 Uw2 2R2 Uw2

Common Beginner Mistakes

Breaking solved centers

Always preserve completed centers.

Forgetting color opposites

Remember:

- White ↔ Yellow
- Blue ↔ Green
- Red ↔ Orange

Losing edge pairs

When pairing edges, restore your setup moves.

Panic during parity

Parity is normal.

It doesn't mean you made a mistake.

After the Beginner Method

When you're comfortable with the beginner reduction method, the next things to learn are:

- Yau Method
- Redux Method
- Advanced edge pairing
- Faster parity recognition
- Wide-turn finger tricks

Most speedcubers learn **Redux** first and then move on to **Yau** if they want to become more competitive.