How to Solve the Rubik's Cube Blindfolded

The purpose of this guide is to help you achieve your first blindfolded solve. There are multiple methods to choose from when solving a cube blindfolded. For this guide, we will use the M2 method on the edges and the Old Pochmann method on the corners.

Although it is not absolutely essential to know how to solve a Rubik's cube prior to trying it blindfolded, it will make the process much easier. A beginning cuber will find this learning process very difficult, while a more advanced cuber might be able to complete their first blindfolded solve within the first day. It took me around 2 months to get to my first successful solve putting in small amounts of time multiple times per week.

Step 1: Learn Your Colors

The first step is about making a decision and sticking with it. You will need to decide how you will hold your cube for blindfolded solves. It does not matter which way you hold it, it just always needs to be consistent.

I always hold my cube with the yellow center piece facing up and the red center piece facing me. When I do this, I know that green is on the right, blue on the left, orange in the back, and white on the bottom.

I chose this orientation because it is the orientation I use for regular solves when solving the white cross on the bottom. Make this choice now and take some time to get familiar with where the colors go if this is not natural already.

Mix up the cube and practice envisioning where each piece belongs based on your orientation. For example, when I see the green and red edge piece, I know immediately that it goes on the front right edge.

Step 2: Learn Your Letters

The next big decision to make for blindfolded cubing is a lettering scheme. The goal here is to associate every sticker on the cube with a letter of the alphabet. Some people do not rely on letters, but I believe using a solid lettering scheme makes the memorization process much easier.

It is not important which lettering scheme you use, so I'm going to make this easy on you and point you toward the Speffz scheme. This is the system we will use in all of the examples in this tutorial. When we solve the cube blindfolded, we solve the edges and the corners separately.

Looking at just the corners, we start with the top of the cube in the back left corner and go clockwise around this layer. Next we go to the left side of the cube in the same manner, then to the front, to the right side, to the back, and then last to the bottom.

The edges are very similar. Take some time to get familiar with this scheme. It is not important at first for this to be automatic, but as it becomes more natural, it will make it easier and faster to memorize and solve the cube blindfolded. A good way to start is to learn the first letter for each face of the cube like a bookmark – A, E, I, M, Q, U. This way when you are looking for the T sticker, you can jump to Q and go around clockwise to find T.
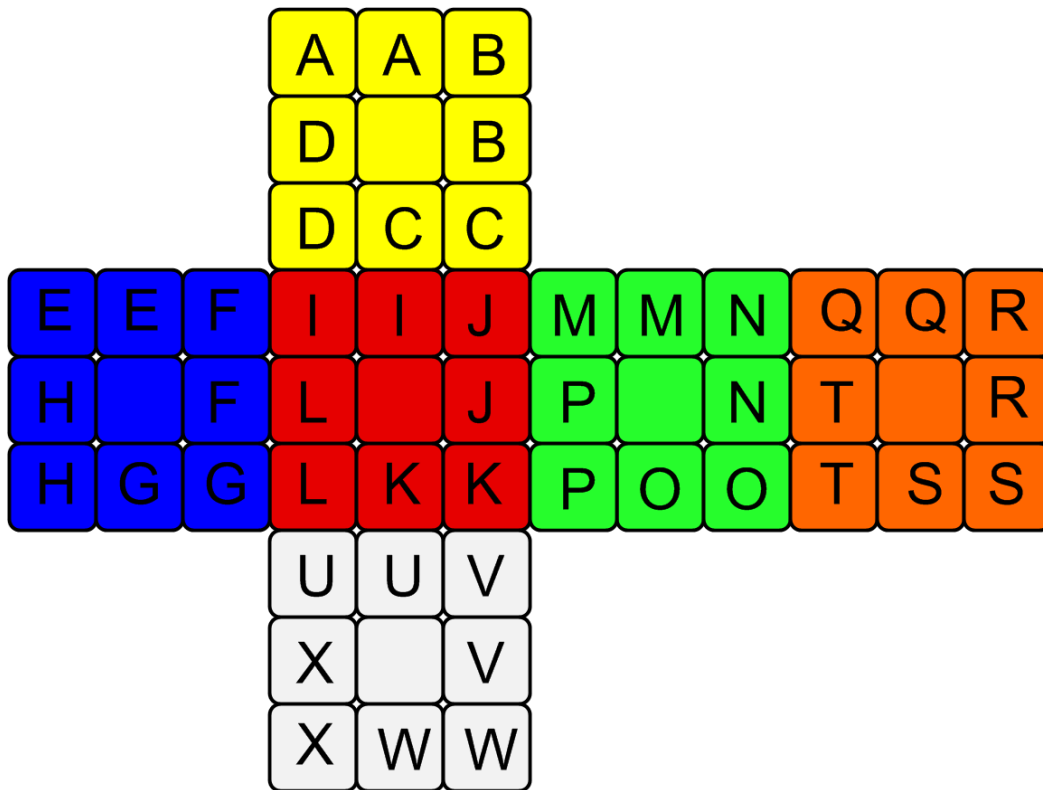
Step 3: Learn to Memorize (The Buffer Concept)

The key trick to blindfolded solving is the buffer concept. To illustrate this consider the sequence of letters below.

D   C   A   E   B

Now it would be easy to put these letters in the right order with our eyes open, but if there were 20 letters and you needed to instruct someone how to reorder them with your eyes closed, then we need a better system.

If we call the first letter in the sequence the buffer and we decide we can only swap pieces with the buffer then the process becomes more manageable. For example, since the first letter is D, we swap this with the letter in spot where D should go. We memorize 'D' and now the sequence will look like this.

E   C   A   D   B

Now the first letter in the sequence is E. We perform the swap with the letter in the E position. We memorize 'E' which gives us:

**B   C   A   D   E**

Next we swap the B in the buffer position with the letter in the 'B' position. We memorize 'B'

C   B   A   D   E

Finally we swap the 'C' in the buffer position with the letter in the 'C' position. We memorize 'C'

A   B   C   D   E

So now if we look back at the original sequence we can infer the series of steps by starting with the letter in the buffer position (D), looking at the letter in its location (E), looking at the letter in E's location (B), then finally looking at the letter in the B position (C). If we look at the letter in C's position (A), it is our buffer piece. It is not necessary to memorize the buffer letter.

D   C   A   E   B   **D**

E   C   A   D   B   **E**

B   C   A   D   E   **B**

C   B   A   D   E   **C**

A   B   C   D   E
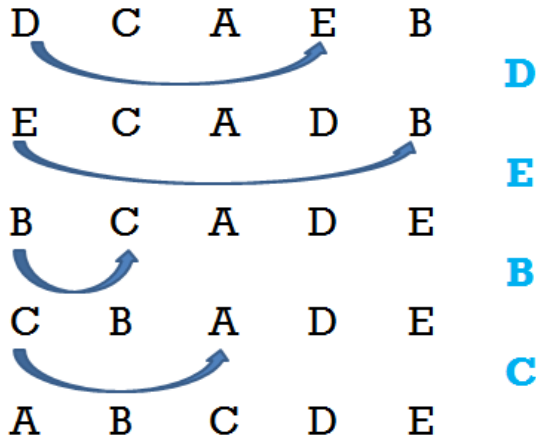
When memorizing the letters, it is important to get into the habit of memorizing the letters as pairs. The reasons for this will become clear when we talk about how to apply the buffer concept to the cube. One obvious advantage we can point out now is that pairing letters makes the list of items to memorize shorter. For the simple example above, we could imagine the country Denmark (DE) in ancient times (BC). The more strange or vivid the images, the easier it will be to recall.

Cycle Breaks

Before we talk about how the buffer concept applies to the cube, let's look at a more difficult example.

D   C   B   E   A

This is only slightly different from the first example. If we look at the series of move required to put this sequence in order, we would see that D is in the buffer position, so we memorize 'D'. Next, E is in D's position, so we memorize 'E'. Next A is in E's position… so the cycle is complete because we never memorize the buffer piece. Let's see where the sequence is after we execute the swaps with 'D' and 'E'.

A   C   B   D   E

Where do we go from here? At this point we have completed one cycle bringing the buffer piece to its correct position, so we have to 'break' into a new cycle. Next, we need to swap it with any piece (it is not important which one) that is not already solved. Here we can choose a swap with 'C' or 'B' as the next move. Let's choose 'B'

C   A   B   D   E

Then we continue the new cycle. The next swaps with the buffer are 'C' and then 'B'. So the entire set of swaps can be written as: (D E) (B C B)

The () indicate the different cycles.

Step 4: Learning to Solve the Corners

Our next step is to apply the buffer concept we just learned to the cube. This guide will teach you to solve the cube starting with edges first followed by the corners. However, there are a few good reasons to learn about the corners first:

1. There are only 8 corner pieces vs. 12 edge pieces, so the memorization is a little easier.
2. The setup moves are a easier to master.
3. The corners can be practiced without edges in the way on a 2x2 cube.

In this guide we will use the Old Pochmann method for solving the corners. There is a sequence of moves we will use to swap the stickers in the A and P positions in the picture below. A side effect of this swap is that the blue edge stickers also switch positions.

The sequence: **R U' R' U' R U R' F' R U R' U' R' F R**
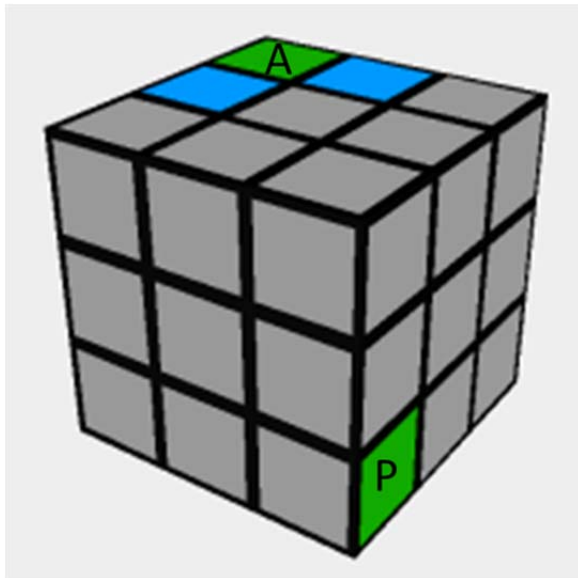
The corners can be solved using this single algorithm to make swaps just as we did with the sequence of letters learning the buffer concept. The trick is for each swap, we need to place the corner sticker we want to swap with in the position where P is normally located, we can then make the swap using the algorithm, then reverse the moves to put the sticker back into its original position.

This sounds hard, right? Getting the stickers into and out of position is actually easier than you might think. When I started learning this, I found a list of setup moves which are really helpful to have handy. When I first looked at the list, I felt a little overwhelmed at the number of setup moves I was going to need to memorize. However, these moves are actually pretty intuitive – use this list to work through the setup moves and you will start to get a feel for how easy it is to shift things into the P sticker position.

Old Pochmann Corners Setup moves:

B: R D'	**F:** F2	**I:** F' D	**M:** R'	**Q:** R' F	**U:** F'
C: F	**G:** D2 R	**J:** F2 D	**N:** R2	**S:** D' R	**V:** D' F'
D: F R'	**H:** D2	**K:** F D	**O:** R	**T:** D'	**W:** D2 F'
		L: D	**P:**		**X:** D F'

For example, let's start with the M, N, and O stickers. Each of these requires only a simple R rotation to place the sticker into the right location. Looking at the I, J, K, and L stickers – the setup is to move the sticker into the 'L' spot and then rotate the bottom layer to shift it into the target location. As part of your learning, I encourage you to spend time doing and undoing each of the moves in this setup table until they become more natural. It will not take too long for these moves to become intuitive.
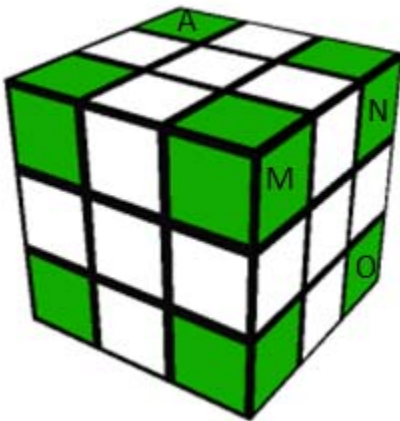
At this point, it is worth getting your hands on a 2x2 cube if you do not already have one. (A 2x2 cube is equivalent to a 3x3 without edge or center pieces to worry about). We are going to work towards a 2x2 blind solve. I am going to give you a scramble below and then walk you through the solution to illustrate the whole process of solving the corners.

Example Solve on 2x2 Cube

Start with a solved 2x2 cube (alternatively you can use a 3x3 cube and ignore the edge pieces), do the following scramble:

B' L F2 R' B' U2 D2 R2 F2 U' L D2 U' R' L2 D2 F' D U' L' U2 D' F' B' U2

We start by looking at the sticker in the buffer location (A). This first sticker belongs in the C location, so we memorize 'C'. Next we look in the C location and we see the sticker that belongs in the B location, so we memorize 'B'. Continue this process the first time writing down each letter. There are no cycle breaks required for this solve. By then end you should have this sequence written down: **(CB UF PT S)**

When you look at the sticker in the S location, you will see the sticker for the buffer location. Remember, you do not need to memorize the letter for the buffer piece. Something else important to remember when doing the 3x3 cube is to note that there is an odd number of letters. This will also mean that there will be an odd number of letters for the edges and we have **parity**. Parity is something we will talk more about when we solve the edges.

We can memorize this sequence of letters with something like "ChicagoBulls got UnFair PoinTS" or "CowBoy's UltraFurry PeTS". The more abstract the images or ideas, the easier it will be to recall while solving blindfolded.

Example Solve on 2x2 with Cycle Breaks

Let's try one more example with cycle breaks. This is a little harder, but it becomes easier with practice. Execute the following scramble:

B D' F B L B F' D2 F' D R' B R2 U2 F B' U L2 U2 R B2 D' L R2 D

Looking at the buffer location, we see the P sticker, so we memorize 'P'. However, when we look at the sticker in the P sticker location for our next target, we see the buffer piece (A, R, and E stickers are all stickers on the corner pieces that belongs in the buffer location). This means we are already at the end of the first cycle.

To break into a new cycle, we choose any sticker that is not in the correct location to start with. Let's choose 'C' because it has a very easy setup. We memorize 'C', but we must remember that this corner is not solved. I usually use my fingers to mark which pieces are already taken care of, but in this case we do not check off this corner. The F sticker is located in the C sticker location, so we memorize 'F'. Next is 'G' and then next is 'J'. The J sticker is located on the same corner as the C sticker where we started the cycle, so this cycle is also complete.

Now, let's identify which corners are remaining. The corner on the back bottom left is already in the right location, so we can ignore it. The 2 corners on the back right side are both unsolved. Let's target the B sticker next (memorize 'B', but remember this corner is not yet solved). This sticker goes in the O location (memorize 'O'). The O sticker goes in the B location which completes the last cycle (memorize 'B).

The sequence we have now memorized is: **(P) (C FG J) (B OB)**

Notice the sequence of letter is only one letter longer than in the first example with one cycle. It is a little confusing at first to break into new cycles, but the key is to carefully track which pieces are solved and when a cycle is complete.

Using the MemoGenerator App

A very helpful tool to practice identifying and memorizing the letters is the mobile app MemoGenerator. This app generates a scramble without showing you the solution. Once you think you have the letter sequence figured out, you can select 'Solve' and it will display

the correct letter sequence for the corners and the edges. It is very helpful early on to identify where you have made simple mistakes in the letter sequence. One thing to keep in mind is that when cycle breaks are needed, there are multiple options for breaking into the next cycle, so your solution can still be correct and not match exactly with the solution from MemoGenerator.

To use MemoGenerator with the examples provided in this guide, make sure to select the following in the app settings:

- Edge Solving Method – M2
- Corner Solving Method – Old Pochmann
- Change letter scheme – Speffz

Step 5: Learning to Solve the Edges

If you have spent time on Step 4 and have started to get the hang of solving the corners, the edges are very similar and only a little more difficult. In this guide we will learn to solve the edges using the M2 method. The M2 method was also created by Stephen Pochmann – it is a more efficient in that it requires fewer moves than the original 'Old Pochmann' method for the edges.

The buffer piece for the M2 method is the sticker located in the letter U location. The M2 move that is used in all of the sequences in the table below swaps the buffer piece (U) with the A sticker. Similar to the solving the corners where we want to shift a piece into the P sticker location before performing the swap algorithm, here we want to shift the target edge piece into the A sticker slot before performing the M2 swap.

As with the corners, many of the M2 setup moves become intuitive once you become familiar with them. In the table below I divided the targets into 3 categories. The outside edges pieces can be inserted starting with a U or U' move, while the inside edges can be inserted starting with a B or B' move. The targets highlighted in green are very similar and straightforward, and the targets highlighted in yellow are a little different since these edge pieces happen to fall into the top slice or back slice of the cube. The special cases are ones that should be memorized. Three of these are very easy, the Q target is slightly tricky, and the I and S moves will definitely take some practice to get familiar with. The good thing about the I and S targets is that they are the exact opposite of each other.

M2 Targets:

Outside Edges	Inside Edges	Special Cases
J: U R U' M2 U R' U'	**M:** B' R B M2 B' R' B	**A:** M2
V: U R2 U' M2 U R2 U'	**O:** B' R' B M2 B' R B	**C:** U2 M' U2 M'
T: U R' U' M2 U R U'	**P:** B' R2 B M2 B' R2 B	**W:** M U2 M U2
L: U' L' U M2 U' L U	**E:** B L' B' M2 B L B'	**Q:** B' R B U R2 U' M2 U R2 U' B' R' B
X: U' L2 U M2 U' L2 U	**F:** B L2 B' M2 B L2 B'	**I:** D M' U R2 U' M U R2 U' D' M2
R: U' L U M2 U' L' U	**G:** B L B' M2 B L' B'	**S:** M2 D U R2 U' M' U R2 U' M D'
B: R' U R U' M2 U R' U' R	**H:** u' L' u M2 u' L u	
D: L U' L' U M2 U' L U L'	**N:** u R u' M2 u R' u'	

My recommendation is to start with the outside edge moves highlighted in green. Point to the sticker, and as you execute the sequences watch carefully how the sticker gets into its place prior to the M2 move. Spend time on only these moves until they become comfortable, then start to look at the moves for the B and D stickers (highlighted in yellow).

Follow this same order for learning the Inside Edges. After spending time with these, you will start to feel that the outside and inside edges are very easy and will only dread the

special cases. The good news is there are not many special cases and some are very easy to memorize.

Even and Odd Edge Targets: When solving the edges, there is something important to know about the C, W, I, and S targets. These targets are on the middle slice of the cube. With each M2 move, this slice is shifted 180 degrees. That means that every other M2 move, these targets will be 180 degrees out of phase and will need to use a different algorithm. If it is an even target in the sequence, 'C' will switch to 'W' and vice versa. 'I' and 'S' will also switch. You will still memorize based on the location of the target sticker at the start, but when solving you will need to adjust these if they happen to be an even target. This is a critical reason we memorize the letters in pairs.

Step 6: Putting it All Together

Here are the steps we will use to complete a blindfolded solve:

1. Memorize the letter sequences for the edges and corners.
2. Both of these sequences will have an even number of letters or an odd number of letters. If the number of letters is odd, remember there is **parity**.
3. Put on the blindfold and execute the edges.
4. If there is parity, do the following sequence: **D' L2 D M2 D' L2 D**
5. Solve the corners

For the first step, there is the choice to memorize the edges first or the corners first. I did my first few solves memorizing the edges first because I would solve them first, but I decided to try memorizing the corners first. I focus a little harder to commit the corners to memory because I need to remember them longer, but it makes it a little easier to memorize the longer sequence for the edges because the edges are solved first just after you have finished memorizing them.

Parity is caused by odd number letter sequences. Remember that when you swap two corners, it also swaps two edges. This is not a big deal when it is an even number because they will end up back in their original spots. The same is true when solving the edges – an odd number of M2 movements leaves the M slice 180 degrees out of phase. Executing the parity sequence after doing the edges takes care of everything.

As you learn and practice blindfolded cubing, the key is to break things down into small parts. It can be quite frustrating to pull off the blindfold to see a completely scrambled cube without having any idea where a mistake was made. It is important to know your colors well, to know your letters well, to practice memorization, and to become very comfortable with the corner and edge setup moves.

Once all of these pieces come together, you will find great reward in the thrill of finishing your first blindfolded solve. It is hard work, but the great thrill of accomplishment makes the effort well worth it.

Resources

Blindfolded cubing is a big challenge to take on. I believe with difficult concepts, it is important to look at many explanations and examples. The most helpful tutorial for me by far was the video series from NoahCubes.

Noah's Tutorial: https://www.youtube.com/watch?v=cRaf-dvamTE

As I mentioned before, the MemoGenerator app is a huge help in practicing the memorization process:
https://play.google.com/store/apps/details?id=de.jojo.memogenerator&hl=en