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# 2x2 solving methods

To start solving Rubik's Cubes easily, begin with a 2x2 or mini cube, which is simpler than the standard cube and requires memorizing just a few specific moves to match all colors. First, learn the names of the six faces and how to read algorithms, as expert Phil Yu suggests using special notation for the cube's faces and turns to make solving less complicated. An algorithm is a sequence of moves listed in order to move colors into the right spots. Notation includes U for the upper face, D for the down face, R for the right face, L for the left face, F for the front face, and B for the back face, with letters alone indicating a 90-degree clockwise turn, an apostrophe indicating a counter-clockwise turn, and a number 2 indicating a 180-degree turn. Start by positioning the white-red-blue corner in the top layer, ensuring the white square with the logo is on top, the red square is on the front, and the blue square is on the right. This position will be the reference point for checking progress on the top layer. Once the top layer is set, all white squares should be on the upper face. Next, find the white-blue-orange corner and note its location; if it's in the top layer, use the algorithm (R', D', R) to shift it to the bottom layer. Then, move this corner into position in the top layer by holding the cube so the white square with the logo is in the bottom-left corner of the upper face and twisting the down face until any square of the corner is in the bottom-right of the front face. Depending on which square is on the front face, use either the algorithm (R) if the white square is on the front or another move if the blue square is on the front to bring the white squares together on the upper face and the blue squares together on the front face. The process starts with placing the blue square at the bottom, followed by the white square moving to the front and then finally positioning it on the upper face. If the orange square is already on the front face, the algorithm (D, R2) is applied, shifting the blue square to the back and bringing both squares together on the upper and front faces. Next, move the white-green-orange corner to the bottom layer, holding your cube so that this corner is on the left side of the front face. Identify the position of this corner in relation to other squares. If it's already on the top layer, moving it to the bottom layer simplifies its placement. To place the final orange square in the correct spot, apply algorithm (R’) if it’s directly above the top-right corner or (R, D’) if a green or white square is present. The position of the white-green-orange corner also affects your next steps, and you'll use algorithms like (R) for the third white square or (D, R2) to move other squares into place. To complete the top layer, locate the final white-green-red corner, take note of its placement, and apply algorithm (R’, D’, R) if necessary. By carefully following these steps, you'll successfully solve your Rubik's cube. Here's a rewritten version of the text with occasional spelling errors to mimic non-native English speech: Algorithm (F, D', F', D2, D', R', D, R)First move is bring white square to bottom-right front corner. Then last four moves put corner back on top layer. If white square is on front face, use algorithm (D', R', D', R). This reposition final corner so red squares are touching on right face, and then move white square to upper face. If green square is on front face, follow algorithm (R', D', R). This moves red square to right face and bring white and green squares together on upper and front faces. When finished, all four white squares will be on upper face and two squares of each other color will be on same face. Flip cube over and check yellow squares on upper. Hold 2x2 Rubik's Cube so four white squares are on down face on bottom. Look at upper face to see if there are any yellow squares already placed there. Reposition cube so it has one of following layouts: One yellow square in bottom-left corner of upper face No yellow squares on upper face, and one yellow square on top-right corner of left face Two yellow squares in top corners of upper face, and one yellow square in top-left corner of front face Two yellow squares in right corners of upper face, and one yellow square in top-left corner of front face Two yellow squares in top-left and bottom-right corners of upper face, and one yellow square in top-left corner of front face Use (R, U, R', U, R, U2, R') to place all yellow squares on upper face. Same algorithm no matter which layout cube has from previous step. If you do algorithm once and all yellow squares still aren't on upper face, then reposition cube to one of layouts in previous step and repeat algorithm again. You may have to repeat algorithm 2-3 times to move all yellow squares to upper face. Finish Rubik's Cube with (R', F, R', B2, R, F', R, B2, R2, U'). Twist top layer of cube so two top corners match colors of bottom layer. Position your Rubik’s cube so corners you need to swap are either next to each other or diagonal from each other. Then use algorithm to reposition corners. If corners are still in incorrect positions, then keep repeating algorithm until cube is completely solved. Tip: To remember movements of final algorithm steps, use chant: “Run to me, Fast, Run to me, Back Back, Run away, Fast, Run to me, Back Back, Run Run away, Up.” Given text Timothy has been speedcubing professionally since 2016 and has gained international recognition for his exceptional Rubik's Cube-solving skills. With over 8.6 million YouTube subscribers and 124k followers on Instagram, he has garnered the attention of notable figures such as David Dobrik and Simu Liu. His work has also caught the eye of Pixar, with the studio deeming it "incredible." The tutorial provided below offers an easy-to-follow guide for beginners to solve a 2x2 Rubik's Cube in under 1 minute. With some practice, Timothy asserts that anyone can master this skill. Looking at it closely makes sense. Point that side of the cube down. Select a Corner Piece: After choosing a face (side of the cube), we will put all the white corners there. To select a corner piece, find any piece that has white on it and focus on that. Make Sure it’s In the Top Layer: Remember, point the face you’ve chosen to line the white pieces on down. If the piece you’ve chosen isn’t on the top layer, use R U R’ to get it there. Make Sure it Isn’t Facing Up: If the piece you’ve chosen has its white side facing up, use this algorithm to make it not do that: R U2 R’. Insert: Turn the top layer till the white piece is above an empty slot in the bottom layer. Then, face the white side of that piece towards you. If the slot and piece are on the left side of the cube, do F U F’; if it’s on the right side do F’ U’ F. Now we’re going to solve the first layer. THE GOAL: Solve the first layer. THE METHOD: Pick a piece, outsert, pick a place, insert, repeat. Pick a Piece: Choose any piece that isn’t in line with its neighbors. That means if any parts of the first layer are solved, leave those. Outsert: Do R U R’ on the piece you chose. Pick a Place: The piece you picked has two other colors than white on it. After that you’ll want to put it (by moving the top layer) next to a piece in the first layer (not on top of) that has a matching color. Insert: Do F’ U’F on the piece you chose, with white facing you. Let’s solve the yellow face! Remember to keep the white face down. THE GOAL: Solve the yellow face. THE METHOD: Pick a piece, align, do an algorithm, repeat. Pick a Piece: Pick any piece without yellow facing up. Align: Face the yellow face up, then turn the cube till the unsolved piece you picked is on your right side. Do an Algorithm: Do (R’ D’ R D)(R’ D’ R D), and see how it rotated that piece you chose? Then, if it needs to be rotated again, don’t worry, just do the algorithm again, it’ll work out. When yellow is facing up, rotate the top face to put an unsolved piece in its place. This is the last step! You got this! GOAL: Solve the cube. Method: Align, do an algorithm in 2 cases. Align: It’s kind of weird, but white is actually facing you for this step, for ease of doing the algorithm! Case 1: If no pairs exist, then no matter how you rotate the top face (which is now the back face) you won’t be able to have 3 faces solved (white, yellow, and some other color). In that case, do (L2 D2)(L’ U’ L)(D2)(L’ U L’) Case 2: No there is a pair of pieces in the top(back) layer. In this case, line them up to solve 3 faces, face that face to the left, and do (L2 D2)(L’ U’ L)(D2)(L’ U L’). The compact version of the classic Rubik's Cube is the 2x2 Rubiks Cube, featuring only two squares on each face. At first glance, it may seem more manageable than its larger counterpart, but still poses a challenge for many cubers. This guide will walk you through solving this puzzle step by step, making it accessible to both beginners and those looking to master smaller puzzles. The 2x2 Rubik's Cube is an official event in competitive cubing, recognized by the World Cube Association (WCA), with the current world record standing at a remarkable 0.43 seconds, set by Teodor Zajder at the Warsaw Cube Masters in 2023. Unlike the 3x3 cube, the 2x2 lacks center and edge pieces, instead focusing on eight corner pieces that need to be rotated into place. Despite its smaller size, solving the 2x2 can still be tricky due to its numerous possible permutations. However, understanding basic algorithms and steps makes it a rewarding experience. One of the most popular methods for solving the 2x2 is the Layer-by-Layer (LBL) approach. This involves starting with the white layer (or any color chosen), then positioning the last layer's corners before orienting them to complete the cube. To begin, you'll need to solve the first layer by getting all four corner pieces on one side to match so that the entire face shows the same color. Start by picking a color to focus on; white is a common choice, but any color will do for now. Next, find the corner pieces of your chosen color and place them on their corresponding faces, aligning with adjacent colors. If a piece isn't in its correct position, perform a simple 180-degree rotation to correct it. Once all four corner pieces are in place, the first layer should be complete. Now flip the cube over so the white face is on top, and the yellow face is at the bottom. Your next step is to focus on solving the last layer's corners by positioning them correctly on their respective layers. are in the correct spot: U R U' L' U R' U' L U: Give the top face a quarter turn clockwise. R: Turn the right face a quarter turn clockwise. U': Turn the top face a quarter turn counter-clockwise (opposite of U). L': Turn the left face a quarter turn counter-clockwise (opposite of L). U: Turn the top face a quarter turn clockwise again. R': Turn the right face a quarter turn counter-clockwise (opposite of R). U': Turn the top face a quarter turn counter-clockwise again. L: Turn left face a quarter turn clockwise. This algorithm switches the top corners around, and you repeat it until all the top corners are positioned correctly (even if they're not oriented yet). Procedure 3. Finish the Last Layer Orient the yellow corners, rotate them so that the yellow color is on top, and hold the cube so that two correctly oriented yellow corners are in front of you. Use the algorithm R' D' R D to orient the remaining yellow corners. R = right face, D = down face ' = counter-clockwise Repeat until all top corners are oriented with the yellow stickers facing up. Once you've finished this step, you'll have solved the 2x2 Rubik's Cube! Tip: If you have a standard Rubik's cube and want to learn how to solve it quickly, try using an app like Al Rubik's Cube Solver to easily identify your current pattern and find the best solution. You can also download this app for free. How to Solve 2x2 Rubik's Cube? By following the Layer-by-Layer method, you can solve the cube with ease. First, solve the first layer, then move on to the second layer, and finally orient the top layer to complete the 2x2 Rubik's Cube solver. With practice, you'll improve your speed and efficiency, and soon you'll be solving the 2x2 Rubik's Cube in no time! How to Solve a 2x2 Rubik's Cube FAQ Q: What is the formula for a 2 by 2 Rubik's cube? To solve a 2x2 Rubik's Cube step by step, first position the corner pieces on one face (Step 1), then position them on the opposite face (Step 2). Finally, use an algorithm to align the colors on top (Step 3). Q: Is 2x2 more difficult than 3x3? The 2x2 Rubik's Cube is generally easier because it has fewer pieces and moves involved. However, difficulty depends on your familiarity with cube-solving methods and comfort level. To master the 2x2 cube quickly, intermediate speedcubers can use various methods like the Ortega Method or Lookahead techniques. The Ortega Method involves building a face, orienting the last layer (OLL), and permuting both layers (PBL) with just 12 algorithms. However, many of these algorithms are similar to those used in 3x3 solving, so speedcubers may already know most of them. Focus on developing solid lookahead skills instead, as this is essential for averaging under 3 seconds. To achieve sub-3 averages with the Ortega Method, one must be able to execute OLLs and PLLs within a second, make the white face in less than 1.5 seconds, predict OLL during inspection (for sub-3 average), and use CLL. If lookahead seems challenging, another option is the CLL (Corner Last Layer) algorithm set, which has 42 algs but requires significant recognition skills. However, CLL can be difficult to learn for beginners, so it's recommended to wait until averaging under 4.5 with Ortega and having solid lookahead skills before diving into CLL. If you choose to learn CLL earlier, be prepared for extensive practice and use recognition trainers to reduce time spent recognizing the case. One-Looking is a more advanced technique that involves predicting the entire solution during inspection, eliminating pause times and allowing for extremely fast solving. It's an essential skill for becoming world-class speedcubers. To start one-looking, focus on using CLL with efficient layering, tracing yellow corner pieces, and predicting their positions after each move. For those looking to further improve their skills, additional algorithms like 1LLL are available but may require extensive practice and knowledge of even more advanced techniques such as EG (Essential G-Perms), which includes 1-Look Last Layer. To wrap up quickly, one efficient algorithm is all that's needed to solve most of the cube. Some expert cubers also use T-CLL and Anti-CLL techniques, which take things a step further, but for many speed solvers, CLL suffices - with dedication, it can lead to remarkable speeds. For additional guidance on improving 2×2 skills, check out these helpful resources:

## 2x2 cube solving methods. Solving 2x2x2x2. 2x2 method. Easy way to solve 2x2. 2x2x2 solving methods. How to solve a 2x2 step by step.