

How to solve a

RUBIK'S CUBE

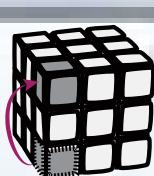
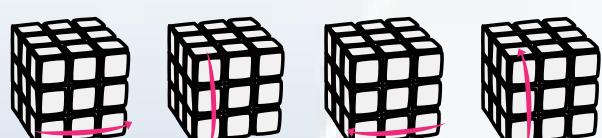
To start, find the face of the cube that has your favorite color square in the center and orient it upwards.

If a corner cubie (the name for one of the small blocks) with your color is in the bottom row, turn that row until the cubie is directly below its rightful corner. Then follow the appropriate set of moves:

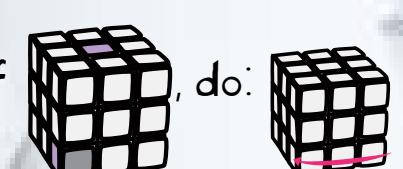
If it looks like



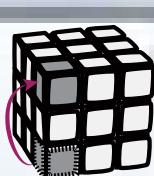
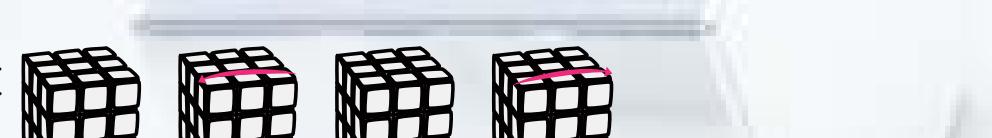
, then do:



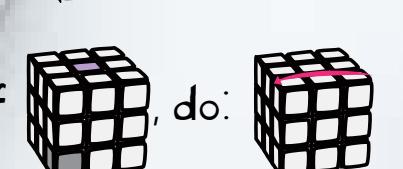
If



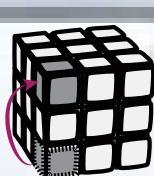
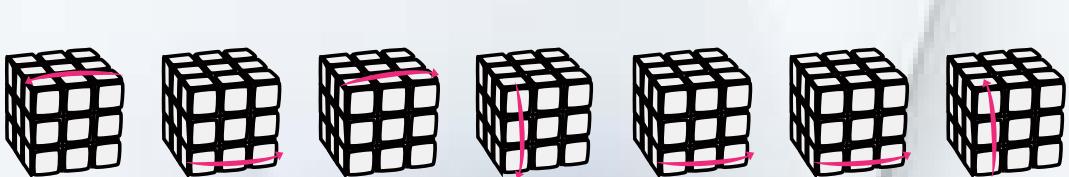
, do:



If

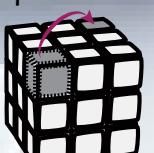


, do:



If a corner cubie with a you color is in the top row but in the wrong place or direction, face your cube so that corner is towards you:

and do:



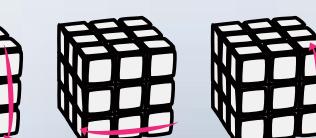
From there, return to the above steps for corner cubies in the bottom row

If an edge cubie is in the bottom row, turn that row until it is directly beneath where it needs to go.

If it looks like:

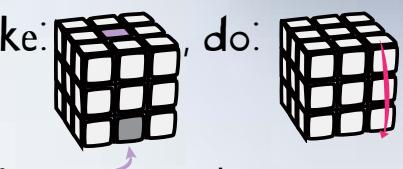


follow:



If the face with the color you want is on the bottom

like:

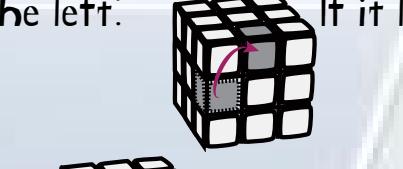


do:

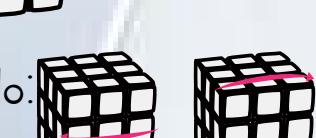


If an edge cubie is in the middle row, turn that row until the cubie is diagonally to the left:

If it looks like



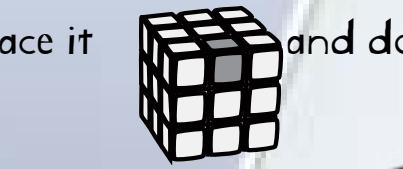
, follow:



For

face it

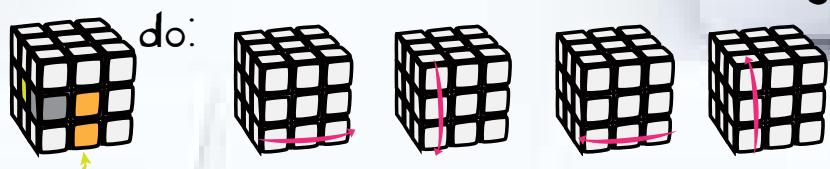
and do:



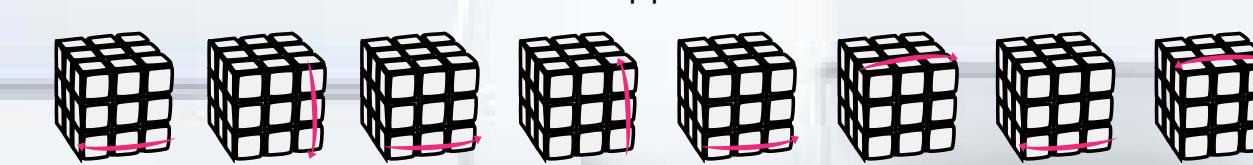
From there, return to the steps for edge cubies in the bottom row.

There are 215,183,765,154 quintillion permutations of a Rubik's Cube. That's more than 4,489,856,000 different ways to scramble a Rubik's Cube.

If an edge cubie that goes in the middle row is in the bottom row, turn the bottom row until the visible face of the cubie matches with the color of a side. If the cubie should go to the left do:

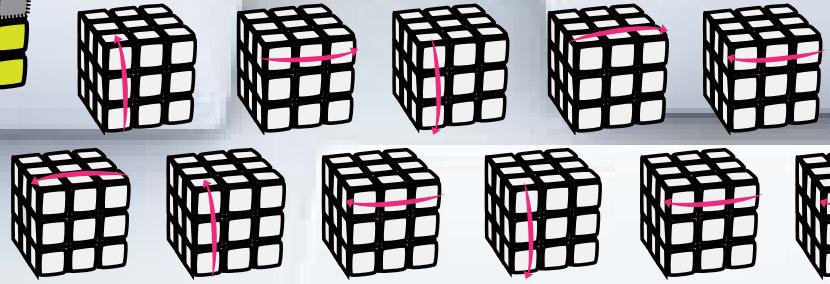


If the cubie should go the right, do the opposite:



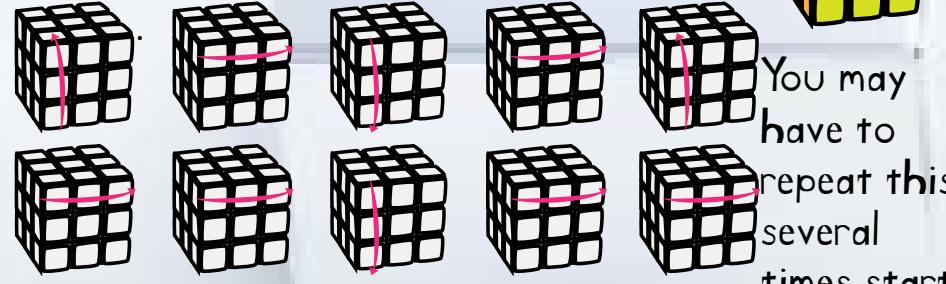
For the remaining steps, flip over the cube and reorient it so that what used to be the bottom is now the top.

To switch the position of two corner cubies, follow:



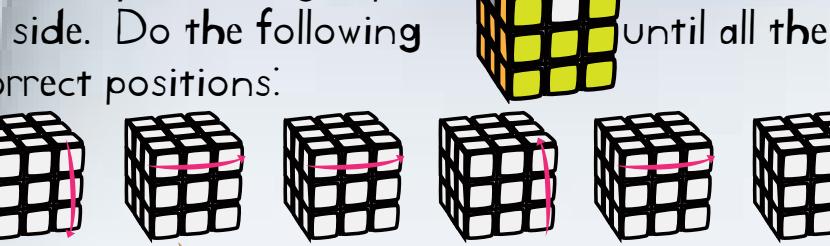
Do this over until all the corner cubies are in the correct corners but not necessarily facing the right direction.

To rotate three corners counterclockwise, do:

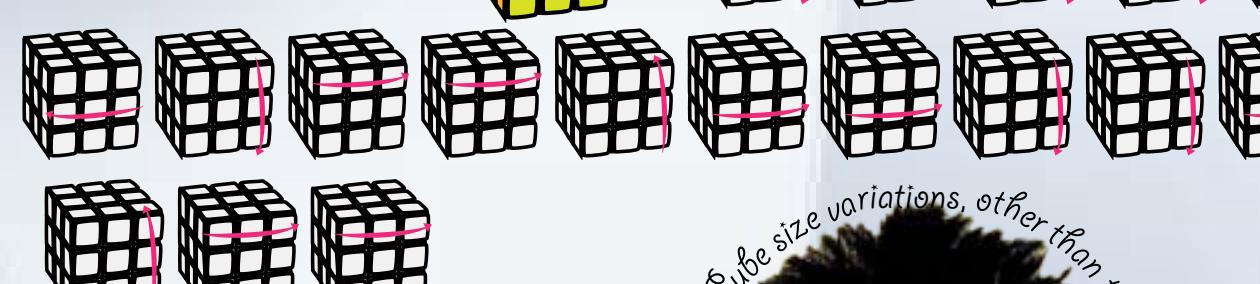


You may have to repeat this several times starting from different faces. Do this until all the corner cubies are facing the right direction.

Turn the cube so that you are facing a cubie that is already in the right place. If there are none, just start from any side. Do the following



until all the middle cubies are in the correct positions:



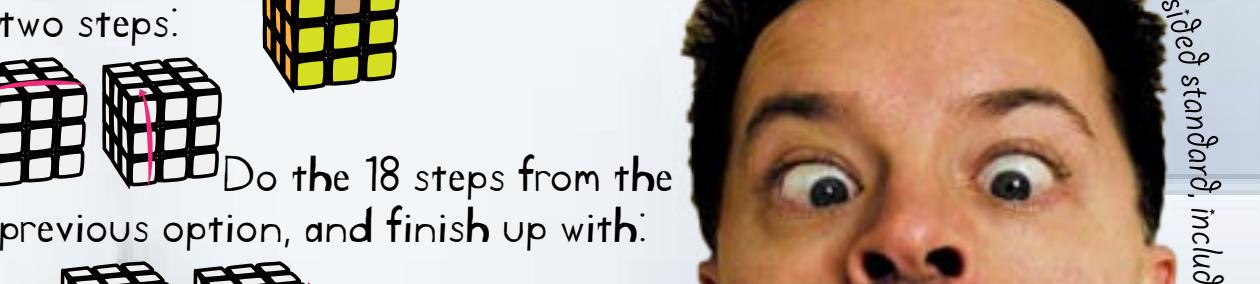
If the cube looks like this:



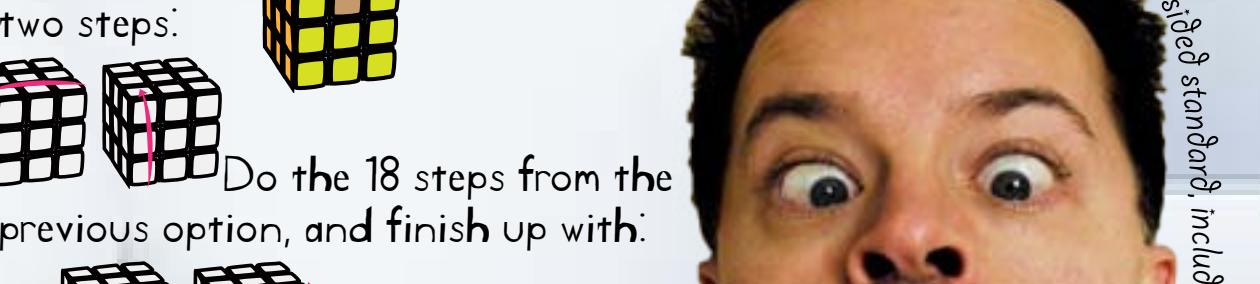
, do:



If the cube looks like this:



, begin with the two steps:



Do the 18 steps from the previous option, and finish up with:



Cube size variations, other than the standard 3x3, include 2x2, 4x4, 5x5, 6x6, 7x7, 8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 15x15, 16x16, 17x17, 18x18, 19x19, 20x20, 21x21, 22x22, 23x23, 24x24, 25x25, 26x26, 27x27, 28x28, 29x29, 30x30, 31x31, 32x32, 33x33, 34x34, 35x35, 36x36, 37x37, 38x38, 39x39, 40x40, 41x41, 42x42, 43x43, 44x44, 45x45, 46x46, 47x47, 48x48, 49x49, 50x50, 51x51, 52x52, 53x53, 54x54, 55x55, 56x56, 57x57, 58x58, 59x59, 60x60, 61x61, 62x62, 63x63, 64x64, 65x65, 66x66, 67x67, 68x68, 69x69, 70x70, 71x71, 72x72, 73x73, 74x74, 75x75, 76x76, 77x77, 78x78, 79x79, 80x80, 81x81, 82x82, 83x83, 84x84, 85x85, 86x86, 87x87, 88x88, 89x89, 90x90, 91x91, 92x92, 93x93, 94x94, 95x95, 96x96, 97x97, 98x98, 99x99, 100x100, 101x101, 102x102, 103x103, 104x104, 105x105, 106x106, 107x107, 108x108, 109x109, 110x110, 111x111, 112x112, 113x113, 114x114, 115x115, 116x116, 117x117, 118x118, 119x119, 120x120, 121x121, 122x122, 123x123, 124x124, 125x125, 126x126, 127x127, 128x128, 129x129, 130x130, 131x131, 132x132, 133x133, 134x134, 135x135, 136x136, 137x137, 138x138, 139x139, 140x140, 141x141, 142x142, 143x143, 144x144, 145x145, 146x146, 147x147, 148x148, 149x149, 150x150, 151x151, 152x152, 153x153, 154x154, 155x155, 156x156, 157x157, 158x158, 159x159, 160x160, 161x161, 162x162, 163x163, 164x164, 165x165, 166x166, 167x167, 168x168, 169x169, 170x170, 171x171, 172x172, 173x173, 174x174, 175x175, 176x176, 177x177, 178x178, 179x179, 180x180, 181x181, 182x182, 183x183, 184x184, 185x185, 186x186, 187x187, 188x188, 189x189, 190x190, 191x191, 192x192, 193x193, 194x194, 195x195, 196x196, 197x197, 198x198, 199x199, 200x200, 201x201, 202x202, 203x203, 204x204, 205x205, 206x206, 207x207, 208x208, 209x209, 210x210, 211x211, 212x212, 213x213, 214x214, 215x215, 216x216, 217x217, 218x218, 219x219, 220x220, 221x221, 222x222, 223x223, 224x224, 225x225, 226x226, 227x227, 228x228, 229x229, 230x230, 231x231, 232x232, 233x233, 234x234, 235x235, 236x236, 237x237, 238x238, 239x239, 240x240, 241x241, 242x242, 243x243, 244x244, 245x245, 246x246, 247x247, 248x248, 249x249, 250x250, 251x251, 252x252, 253x253, 254x254, 255x255, 256x256, 257x257, 258x258, 259x259, 260x260, 261x261, 262x262, 263x263, 264x264, 265x265, 266x266, 267x267, 268x268, 269x269, 270x270, 271x271, 272x272, 273x273, 274x274, 275x275, 276x276, 277x277, 278x278, 279x279, 280x280, 281x281, 282x282, 283x283, 284x284, 285x285, 286x286, 287x287, 288x288, 289x289, 290x290, 291x291, 292x292, 293x293, 294x294, 295x295, 296x296, 297x297, 298x298, 299x299, 300x300, 301x301, 302x302, 303x303, 304x304, 305x305, 306x306, 307x307, 308x308, 309x309, 310x310, 311x311, 312x312, 313x313, 314x314, 315x315, 316x316, 317x317, 318x318, 319x319, 320x320, 321x321, 322x322, 323x323, 324x324, 325x325, 326x326, 327x327, 328x328, 329x329, 330x330, 331x331, 332x332, 333x333, 334x334, 335x335, 336x336, 337x337, 338x338, 339x339, 340x340, 341x341, 342x342, 343x343, 344x344, 345x345, 346x346, 347x347, 348x348, 349x349, 350x350, 351x351, 352x352, 353x353, 354x354, 355x355, 356x356, 357x357, 358x358, 359x359, 360x360, 361x361, 362x362, 363x363, 364x364, 365x365, 366x366, 367x367, 368x368, 369x369, 370x370, 371x371, 372x372, 373x373, 374x374, 375x375, 376x376, 377x377, 378x378, 379x379, 380x380, 381x381, 382x382, 383x383, 384x384, 385x385, 386x386, 387x387, 388x388, 389x389, 390x390, 391x391, 392x392, 393x393, 394x394, 395x395, 396x396, 397x397, 398x398, 399x399, 400x400, 401x401, 402x402, 403x403, 404x404, 405x405, 406x406, 407x407, 408x408, 409x409, 410x410, 411x411, 412x412, 413x413, 414x414, 415x415, 416x416, 417x417, 418x418, 419x419, 420x420, 421x421, 422x422, 423x423, 424x424, 425x425, 426x426, 427x427, 428x428, 429x429, 430x430, 431x431, 432x432, 433x433, 434x434, 435x435, 436x436, 437x437, 438x438, 439x439, 440x440, 441x441, 442x442, 443x443, 444x444, 445x445, 446x446, 447x447, 448x448, 449x449, 450x450, 451x451, 452x452, 453x453, 454x454, 455x455, 456x456, 457x457, 458x458, 459x459, 460x460, 461x461, 462x462, 463x463, 464x464, 465x465, 466x466, 467x467, 468x468, 469x469, 470x470, 471x471, 472x472, 473x473, 474x474, 475x475, 476x476, 477x477, 478x478, 479x479, 480x480, 481x4