

Rubik's Cube Notation Chart

Yellow on top, green facing you. A letter = turn that face clockwise as if you were looking straight at it.



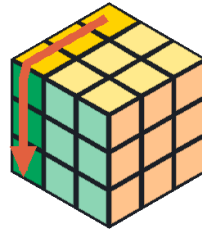
R

Right face clockwise



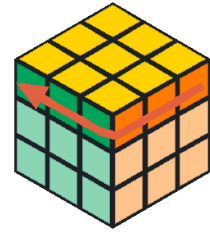
R'

Right face counter-clockwise



L

Left face clockwise



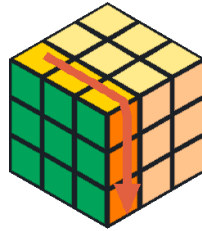
U

Up (top) face clockwise



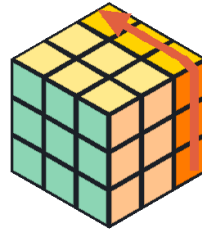
D

Down (bottom) face clockwise



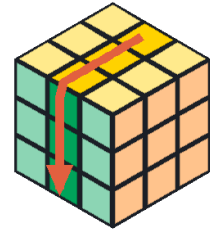
F

Front face clockwise



B

Back face clockwise



M

Middle slice, same way as L



r

Wide R: right two layers



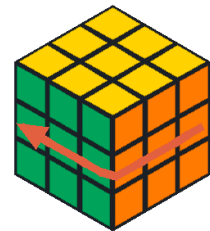
R2

Right face twice (180°)



X

Rotate whole cube like R



y

Rotate whole cube like U

boredomwizard.com • An apostrophe (') = counter-clockwise • 2 = half turn • lowercase = two layers

The Layer-by-Layer Ladder

7 rungs from scrambled to solved. Climb one rung at a time; never skip one.

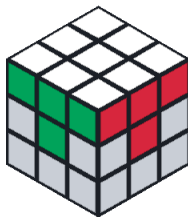
1 White Cross



Make a white plus sign on top.
Edge colors match the side centers.

Intuitive, no algorithm

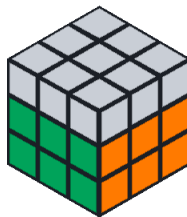
2 White Corners



Corner below its spot, white on top:
repeat until it's solved.

$R' D' R D$

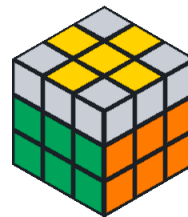
3 Middle Layer



Flip cube: white on bottom. Drop
each top edge into the middle.

$U R U' R' U' F' U F$

4 Yellow Cross



Dot, L or line? Repeat until a yellow
plus appears.

$F R U R' U' F'$

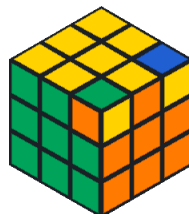
5 Match Yellow Edges



Swap edges until all four match
their side centers.

$R U R' U R U^2 R' U$

6 Place Yellow Corners



Put each corner in its home spot (it
may still be twisted).

$U R U' L' U R' U' L$

7 Twist Last Corners



Twist each corner in the front-right
spot. Turn only U between corners.

$R' D' R D$ (x2 or x4)

boredomwizard.com • Gray = pieces you don't need to care about yet

Quick reference

1 White cross

Daisy: white edges around yellow, F2 each down

2 White corners

$R' D' R D$ (repeat 1, 3 or 5 times)

3 Middle layer, right

$U R U' R' U' F' U F$

Middle layer, left

$U' L' U L U F U' F'$

4 Yellow cross

$F R U R' U' F'$ (L at back-left, line left-right)

5 Match yellow edges

$R U R' U R U^2 R' U$ (matched pair at back + right)

6 Place yellow corners

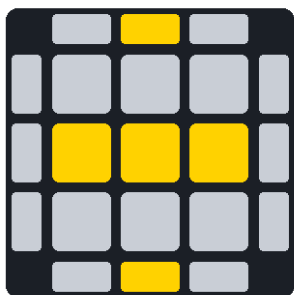
$U R U' L' U R' U' L$ (good corner at front-right)

7 Twist last corners

$R' D' R D$ x2 or x4; turn only U between corners

2-Look OLL, Step 1: Make the Yellow Cross

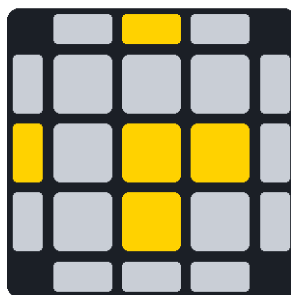
Corners don't matter yet (shown gray). Match your yellow edges, turn U to line them up, then do the moves.



Line

$F R U R' U' F'$

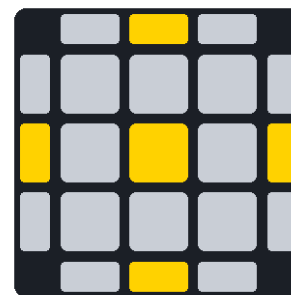
Line runs left to right



L-Shape

$f R U R' U' f'$

Yellow edges at front + right



Dot

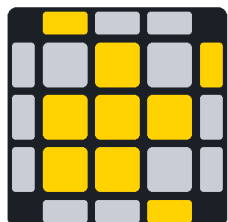
$F R U R' U' F' f R U R' U' f'$

Line alg, then L-shape alg

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2-Look OLL, Step 2: Turn the Whole Top Yellow

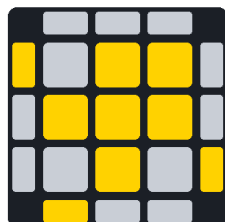
Yellow cross done. Find your corner pattern (gray = not yellow), turn U until it matches, then do the moves.



Sune

$R U R' U R U2 R'$

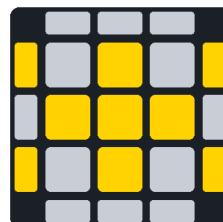
One yellow corner up



Anti-Sune

$R U2 R' U' R U' R'$

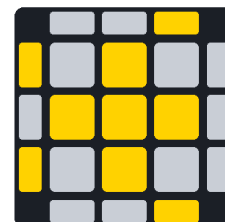
One yellow corner up



H

$R U R' U R U' R' U R U2 R'$

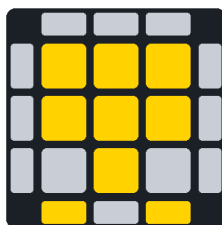
Yellow side stickers left & right



Pi

$R U2 R2 U' R2 U' R2 U2 R$

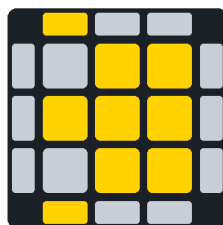
Two yellow stickers on the left



Headlights

$R2 D R' U2 R D' R' U2 R'$

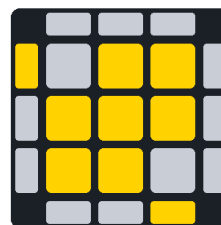
Headlights face you



T

$r U R' U' r' F R F'$

Yellow corners on the right



Bowtie

$F' r U R' U' r' F R$

Yellow corners diagonal

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2-Look PLL: Put Every Top Piece in Place

Step 1 fixes the corners (T or Y). Step 2 fixes the edges (U, H or Z). Arrows show where each piece travels.



T-Perm

$R\ U\ R'\ U'\ R'\ F\ R^2\ U'$
 $R'\ U'\ R\ U\ R'\ F'$

Swaps 2 corners + 2 edges



Y-Perm

$F\ R\ U'\ R'\ U'\ R\ U\ R'\ F'$
 $R\ U\ R'\ U'\ R'\ F\ R\ F'$

Diagonal corner swap



Ua-Perm

$R\ U'\ R\ U\ R\ U\ R\ U'\ R'$
 $U'\ R^2$

3 edges cycle



Ub-Perm

$R^2\ U\ R\ U\ R'\ U'\ R'\ U'$
 $R'\ U\ R'$

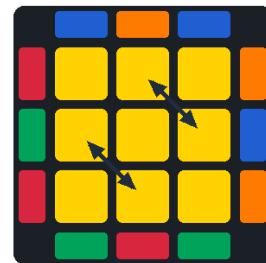
3 edges cycle



H-Perm

$M^2\ U\ M^2\ U^2\ M^2\ U\ M^2$

Opposite edges swap



Z-Perm

$M'\ U\ M^2\ U\ M^2\ U\ M'\ U^2$
 $M^2\ U'$

Neighboring edges swap

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Next 3 PLLs to Learn: A-Perms and J-Perm

Each one skips a step of 2-look PLL. x = tilt the whole cube forward like an R turn; x' tilts it back.



Aa-Perm

$x\ R'\ U\ R'\ D^2\ R\ U'\ R'$
 $D^2\ R^2\ x'$

Headlights at the back



Ab-Perm

$x\ R^2\ D^2\ R\ U\ R'\ D^2\ R\ U'$
 $R\ x'$

Headlights on the right



Jb-Perm

$R\ U\ R'\ F'\ R\ U\ R'\ U'\ R'$
 $F\ R^2\ U'\ R'\ U'$

Solved bar on the left

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