4x4 Notations

The 4×4 Rubik's Cube (often called the **Rubik's Revenge**) uses the same notations as the 3×3, but with extra moves for the inner layers.

Basic Outer Layer Moves

These are the same as on a standard 3×3:

Move	Meaning
R	Right face clockwise
L	Left face clockwise
U	Up face clockwise
D	Down face clockwise
F	Front face clockwise
B	Back face clockwise

Clockwise is viewed while looking directly at that face.

Variations

- **'** (apostrophe) = counterclockwise
  Example: R'
- **2** = double turn (180°)
  Example: U2

Wide Moves (Important on 4×4)

Because the cube has extra layers, you can turn **two layers at once**.

Move	Meaning
Rw or **r**	Right two layers together
Lw or **l**	Left two layers together
Uw or **u**	Upper two layers together
Dw or **d**	Lower two layers together
Fw or **f**	Front two layers together
Bw or **b**	Back two layers together

Example:

- Rw = turn the outer right layer **and** adjacent inner layer clockwise together.

Many speedcubers use lowercase:

- r instead of Rw

Inner Slice Moves

Move	Meaning
2R	Inner right slice only
2L	Inner left slice only
2U	Inner upper slice only
2F	Inner front slice only

Some notation systems instead use:

- r for inner-only
- or special slice notation

So notation can vary slightly between tutorials.

Cube Rotations

These rotate the *entire cube*.

Move	Meaning
x	Rotate cube like an R move
y	Rotate cube like a U move
z	Rotate cube like an F move

They also use:

- ' for reverse
- 2 for 180°

Example:

- y' = rotate whole cube counterclockwise around vertical axis.
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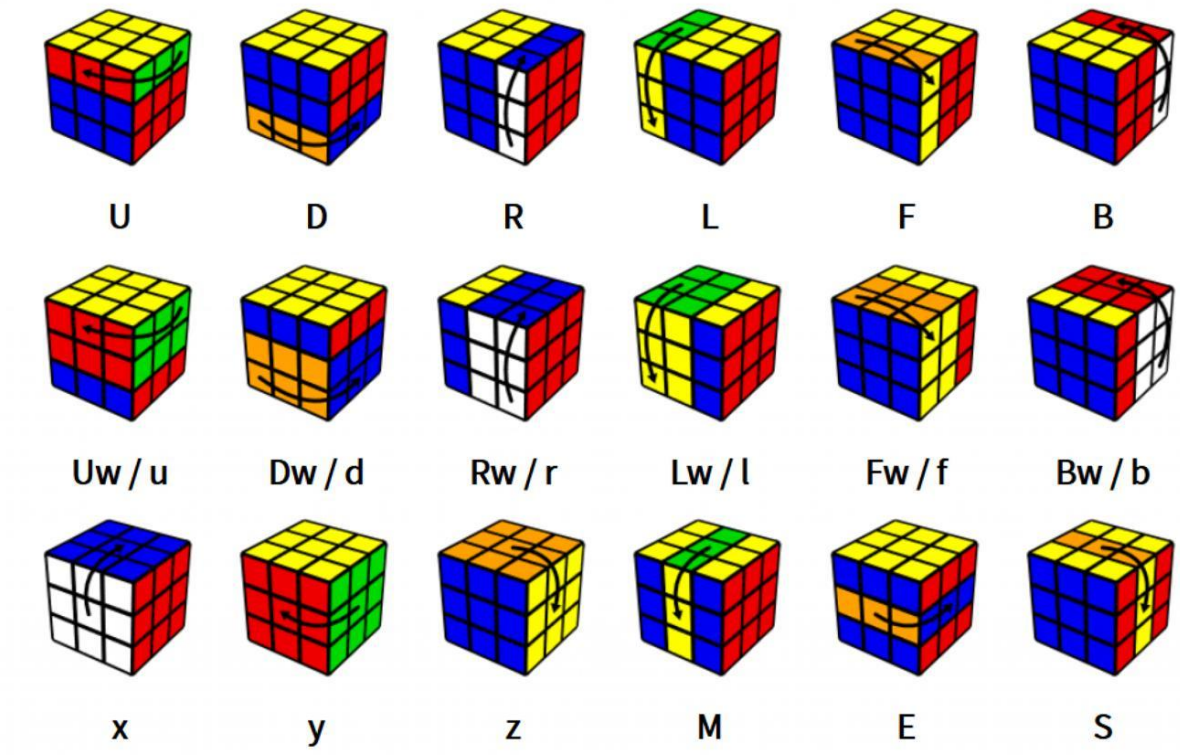
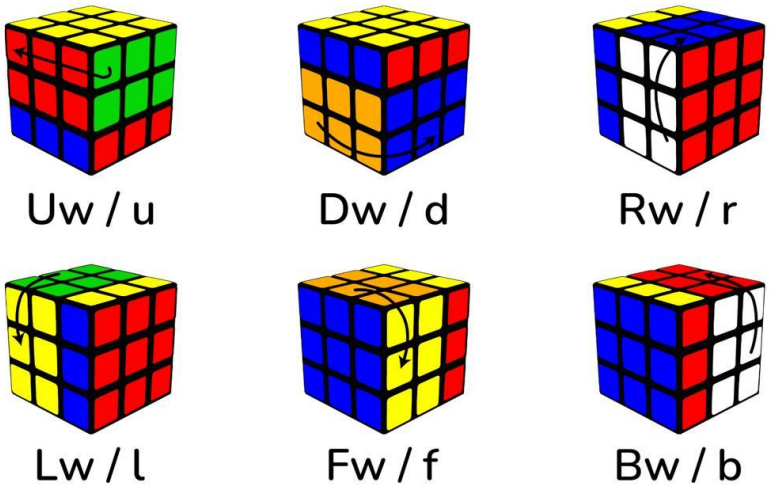
Visual Overview

Outer turns



Wide turns and inner slices



A Few Important 4×4 Differences

Unlike a 3×3:

- The 4×4 has **no fixed centers**
- You must solve:
    1. centers
    2. edge pairs
    3. then reduce to a 3×3