Contents

1 Patterns

- **Checkerboard:** M2 y M2 z M2
- **God's Eye:** M (z M)x3
- **Superflip:** ((M U)x4 y x)x3
- **Cube Within a Cube:** F L F U' R U F2 L2 U' L' B D' B' L2 U
- **Cube Within a Cube Within a Cube:** U' L' U' F' R2 B' R F U B2 U B' L U' F U R F'

2 2x2

2.1 OLL

- **Cross Symmetric:**  R2 U2 R U2 R2
- **Cross Not Symmetric:**  F (R U R' U')x2 F'
- **Sune:**  (R U R' U) R U2 R'
- **Anti-Sune:**  (R' U' R U') R' U2 R
- **Headlights:**  F (R U R' U') F'
- **Chameleon:**  (R U R' U') (R' F R F')
- **Cross:**  F (R U') (R' U' R U) (R F)

2.2 PBL

On the top and bottom face when at this step, 2 corners will be solved (with some AUF) or all 4 will be. "Edges" is when the 2 that are solved are adjacent to each other. "Corners" is when the 2 that are solved are not next to each other and so are on opposite corners.

- **Corners Up, Solved Down:** Y-perm (see 3x3 1L PLL)
- **Edges Up, Solved Down:** T-perm (see 3x3 1L PLL)
- **Edges Up, Edges Down:** R2 U' B2 U2 R2 U' R2
  Edges in front
- **Corners Up, Corners Down:** R2 B2 R2
- **Corners Up, Edges Down:** (R2 U' R2 U)x2 R2
  Edges on left or right

3 Cuboids

- **Top Layer Corner Swap:** R U (R U')x2 D (R U') (R U R)
  Swaps the FRU and BRU corners
- **Opposite Center Swap:** (R U2)x2 R
  Swaps FU and BU centers
- **Adjacent Center Swap:** (R U)x2 (R U2)x2 R U R U' R
  Swaps FU and RU centers
- **3x3x4 Parity:** Uu2 R2 F2 u2 F2 R2 F2

4 3x3

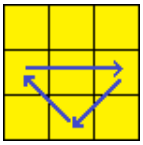
4.1 3x3 BLD

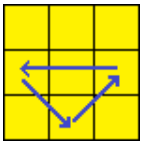
4.1.1 M2 Edges

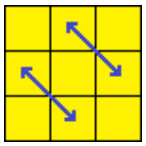
- **UB (A):** M2
- **BU (Q):** (B' R B U R2 U') M2 (U R2 U' B' R' B)
- **UF (C):** (U2 M')x2
- **FU (I):** D (M' [U R2 U'] M [U R2 U']) D' M2
- **DB (W):** (M U2)x2
- **BD (S):** M2 D ([U R2 U'] M' [U R2 U'] M) D'
- **Parity Fix:** (D' L2 D) M2 (D' L2 D)

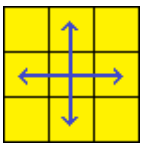
4.2 1L PLL

4.2.1 Permutations Edges Only

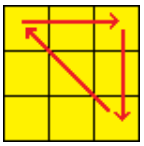
- **Ub:**  **OH:**

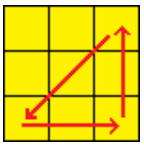
- **Ua:**  **OH:**

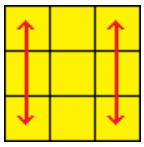
- **Z:** 
  (M2 U')x2 M' U2 M2 U2 M'
  Solves FL/BR switch with U2 AUF
  OH: R U R' U R' U' R' U R U' R' U' R2 U R
  Solves FR/BL switch with U2 AUF

- **H:** 
  M2 U' M2 U2' M2 U' M2
  OH: R2 U2 R U2 R2 U2 R2 U2 R U2 R2

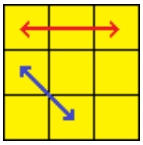
4.2.2 Permutations Corners Only

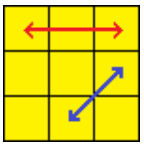
- **Aa:** 
  x R' U R' D2 R U' R' D2 R2
  Trio of correct pieces in ULB corner
  OH: x R' U R' z' R2 U z U' R' z' R2 U2
  Same alg as TH but with rotations

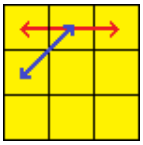
– **Ab:** 
x' R U' R D2 R' U R D2 R2
Trio of correct pieces in ULB corner
OH: x' R U' R z' R2 U' z U R z' R2 U2
Same alg as TH but with rotations

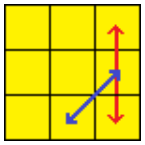
– **E:**  **OH**:

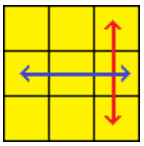
4.2.3 Swap Adjacent Corners

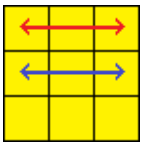
– **Ra:**  **OH**:

– **Rb:**  **OH**:

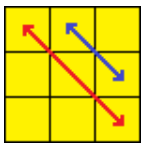
– **Ja:**  **OH**:

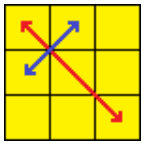
– **Jb:**  **OH**:

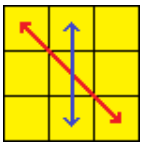
– **T:** 
R U R' U' l' U R2 x' U' R' U' R U R' F'
T "top" on L side
OH: R U R' U' R' F R2 U' R' U' R U R' F'
Same positioning and alg but without rotations as TH

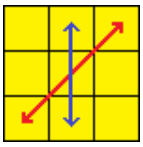
– **F:**  **OH**:

4.2.4 Swap Diagonal Corners

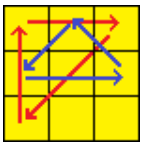
- **V:** 
  R' U R' U' y l' U' R2 x U' R' U l' U R U
  Trio of correct pieces in ULF corner
  OH: R' U2 R U2 z U z' U' R' U z U' R U R' z' R U z U'
  Trio of correct pieces in ULF corner

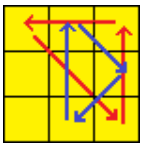
- **Y:**  **OH**:

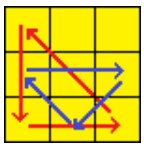
- **Na:**  **OH**:

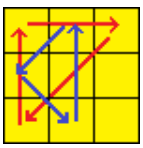
- **Nb:**  **OH**:

4.2.5 Double Cycles

- **Ga:**  **OH**:

- **Gb:**  **OH**:

- **Gc:**  **OH**:

- **Gd:**  **OH**:

5 4x4

- **OLL Parity:** Rw2 B2 Rw' U2 Rw' U2' x' U2 Rw' U2' Rw U2 Rw' U2' Rw2 U2' y
- **PLL Parity:** r2 U2 r2 Uw2 r2 u2

6 Megaminx

6.1 Beginner's Method

This method requires no algorithms until the last layer where it closely resembles the 3x3 beginner's method due to it being just simple communtators for the most part.

- **Orient Edges:** F R U R' U' F'
- **Permutate Edge:** R U R' U R U2' R'
  Is the 3x3 Sune equivalent. Counterclockwise rotates BL, BR and FR edge pieces
- **Orient Corners:** R' DR' R DR
  Repeat communtator until corner is solve then AUF to next unsolved corner
- **Permutate Corners:** R' DR' R and R' DR R
  Remove corner with the first algorithm, AUF to its correct slot and insert corner with the second algorithm