SOLVING THE CUBE – PT. 1

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THE WORLD'S MOST FAMOUS PUZZLE

- Invented in 1974 by Ernő Rubik and originally called the "Magic Cube"
- Debuted at the toy fairs in London, Paris, Nuremberg and New York in Jan + Feb 1980
- 350 million sold worldwide by January 2009
- There are many permutations - 43,252,003,274,489,856,000 to be precise!

GOALS

Simplicity

- Solve the cube using short "**intuitive**" sequences of moves (AKA "**triggers**")
- Combine triggers to create simple "**algorithms**" which are easy to understand and remember
- Promote a "**beginner**" method which can be upgraded to "**intermediate**" and "**advanced**" methods
- Minimise the likelihood of messing up and having to redo earlier steps!

Tips

- "**Cross on bottom**" gives the best visibility of unsolved pieces and helps with "**look ahead**"
- "**Finger tricks**" is the term given to fast, ergonomic turns. They look cool and speed up your solves
- Excessive "**rotations**" should be avoided because they waste time and affect spatial awareness
- "**Colour neutrality**" helps to ensure a good start to your solves and is best learnt from the day one

TERMINOLOGY

Core

The 6 “**centre**” pieces are attached to the core and their relative positions cannot change

Layers

The ”**First 2 Layers**” (**F2L**) is the name given to the bottom two layers

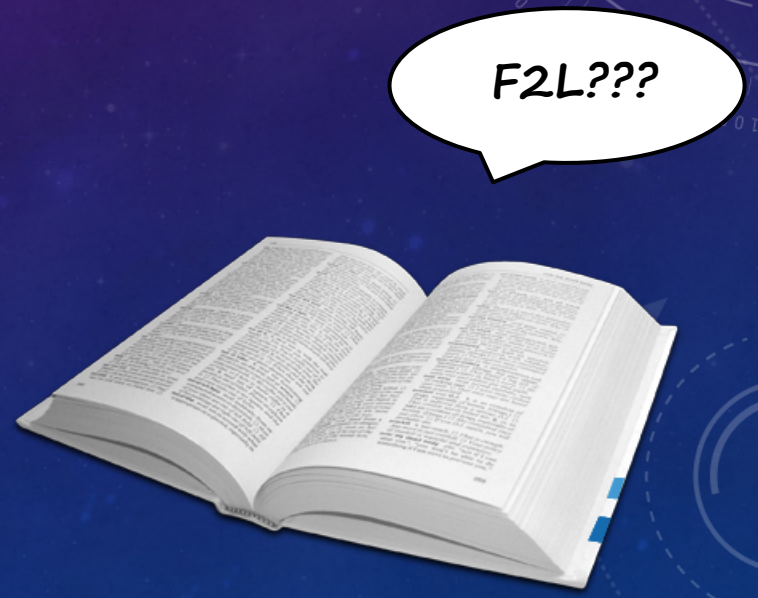
The “**Last Layer**” (**LL**) is the name given to the top layer

Pieces

“**Cubies**” – 6 “**centres**”, 8 “**corners**” and 12 “**edges**”

“Orientation” – e.g. “**flipped**” edges and “**twisted**” corners

“Permutation” – e.g. relative positions of the edges and corners



NOTATION

Face Turns

- Face turns use the letters **R U F L** D B but we won't use D or B turns
- The basic turns (e.g. **R U F L**) are 90° **clockwise**
- Turns ending with an apostrophe (e.g. **R' U' F' L'**) are 90° **counter-clockwise,** pronounced "**R Prime**", etc.
- Turns ending with a "2" (e.g. **R2 U2 F2 L2**) are 180° and can be finger-tricked with a "**double flick**"

Cube Rotations

- Cube rotations use the letters x **y** z but we won't use x or z
- **y** is a 90° **clockwise** rotation around the y-axis. It goes in the same direction as **U**
- **y'** is a 90° **counter-clockwise** rotation around the y-axis. It goes in the same direction as **U'**

Fancy Moves

- Wide turns (**r u f l d b)** affect an inner + outer layer at the same time but won't be used in this method
- Slice turns (**M E S**) affect an inner layer or both outer layers but won't be used in this method

BASIC MOVES

Blue on Left

L

L’

Red on Front

F

U

y

Green on Right

F’

U’

y’

R

R’

METHOD / FRAMEWORK - CFOP

1. **The Cross** – 4 edges

2. **First Two Layers (F2L)**

3. **Orientation of the Last Layer (OLL)**

4. **Permutation of the Last Layer (PLL)**

STEP 1 – THE “CROSS”

The word “**intuitive**” is commonly used but it is a relative term and assumes some familiarity with the cube

Step 1.1

- Get all 4 cross pieces into the U-Layer (AKA The “**Daisy**”) – intuitive

Step 1.2

- Align one of the cross pieces with its respective centre
- Solve the cross piece using R2 or L2 thus moving it from the U-layer to the D-layer
- … repeat for the remaining 3 cross pieces

Once comfortable with this approach try to solve cross pieces directly to the D-Layer - slightly harder!

“JUST DO IT”

HOMEWORK