

RUBIK'S CUBE FACT SHEET

NUMBERS

- There are $12! * 8! * 2^{12} * 3^8 / (2 * 2 * 3) = 4.3 * 10^{19}$ possible solvable positions. (We divide by twelve because there is no sequence of moves that will swap a single pair of pieces or rotate a single corner, or flip a single edge. i.e. only one in twelve cubes is actually solvable).
- The maximum number of moves to solve any position is either 20,21,or 22 moves – no one knows, but a few supercomputers are working on it.

STRUCTURE: Every Rubik's Cube is made up of:

- **12** unique **edge pieces**, every edge piece has two stickers
- **8** unique **corner pieces**, every corner piece has three stickers
- A **centerpiece**. Note that centers are fixed w.r.t. each other. Therefore the center on every one of the 6 faces dictates the color of that face.
- Every piece (corner or edge) has a unique position that it has to end up in w.r.t. the centers



WORLD RECORDS

Single Solve	7.08 seconds
Average of five solves	11.28 seconds
One handed average of five	18.29 seconds
Blindfolded	48.05 seconds (includes memorization & solve)
With feet	47.21 seconds
Copying a scrambled cube	42.44 seconds
Youngest solver	3 years 117 days
Most solves in 24 hours	4786 cubes
Underwater in single breath	6 cubes