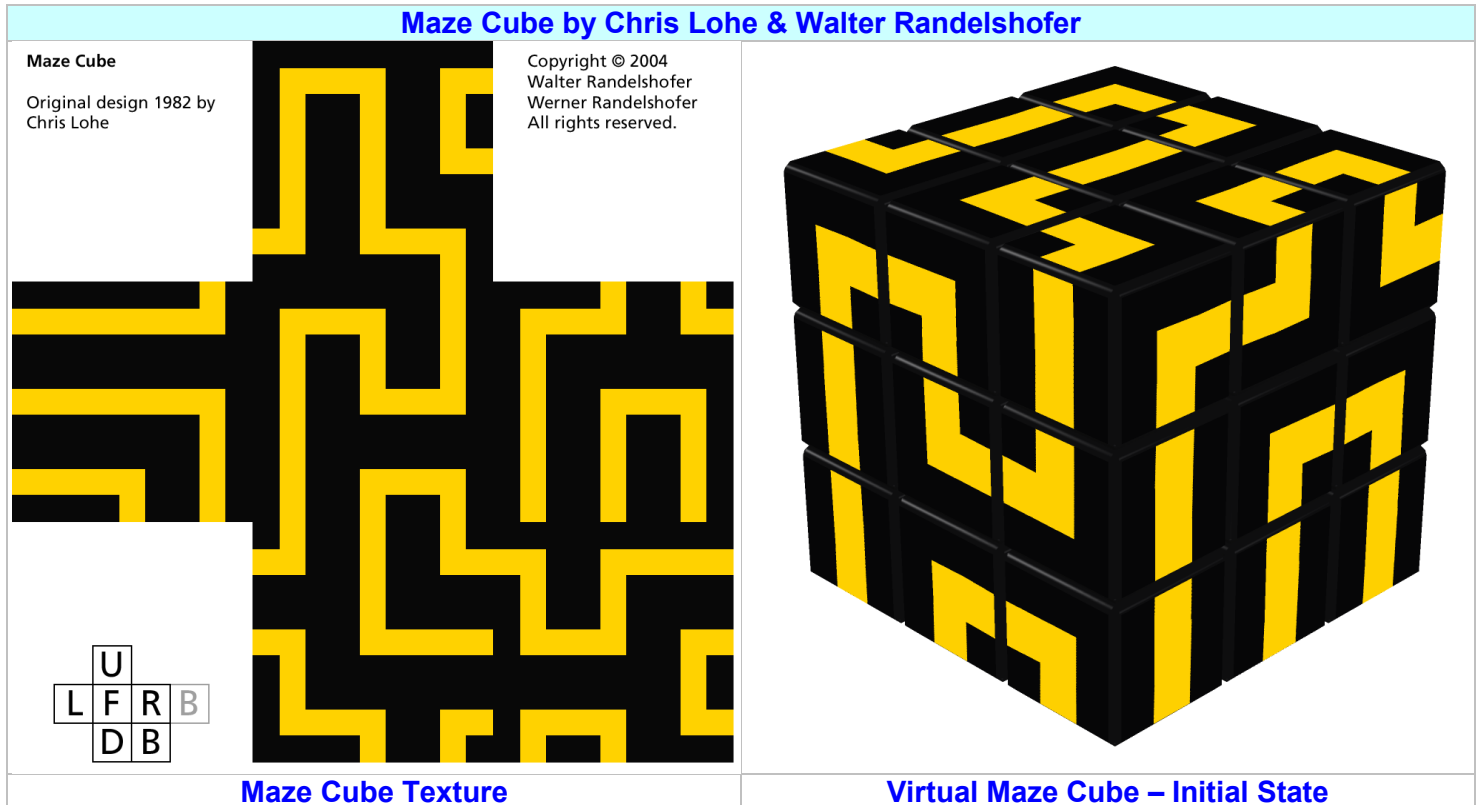


Maze Cube

This document is based on the 'labcube' text published some time ago by [Jaap](#) on the [Twisty Puzzles Forum](#).

Introduction

A Maze Cube is a 3x3x3 stickered Rubik's Cube where single or multiple *closed* loops can be displayed on the cube faces. There is no unique way of implementing maze patterns on a cube and a *specific* [maze cube](#) design by Chris Lohe is considered in the present document.



Solutions

Jaap's document gives a number of *general* solutions applicable to mazes with 4 right-angle lines and 2 straight lines as sub-patterns. A *sub-set* of 346 solutions has been extracted from these in the case of Chris Lohe's design, for which there are:

- no 'orientation-free' corner
- a number of symmetric midges, ie. 'orientation-free' midges, that can be flipped to give the same pattern
- 2 straight-line centers that can be swapped to toggle parity

Solutions have been selected where:

- the sum of all 8 corner twists is zero
- the sum of all 12 midge flips is zero and if not, then a single symmetrical midge is flipped
- corner and midge permutation parities are identical plus center permutation parity is even
- corner and midge permutation parities are different plus center permutation parity is odd
- corner permutation parity and center orientation parities are identical

The cube center permutation parity can be set to even or odd at *no* move cost simply by applying one or two [cube rotations](#). In the solving process, corners, midges and centers are first permuted, ie. moved to their respective positions, and oriented last. As the Maze Cube is a particular case of a SuperCube, centers must also be properly oriented to ensure that their lines do connect to the lines located on their neighbouring midges.

Algorithms

A list of 346 Maze Cube algorithms has been generated by computer program [AlgorithmFinder](#).

Maze Cube Patterns – Examples

