System Requirements:

Apple II or III computer, 48K Applesoft in ROM or Language System (16K card), DOS 3.2 or 3.3.

Beginning:

1. If you have Applesoft in ROM, simply insert the diskette into drive #1 and boot normally (do not use the "Basics" diskette). If you have a Language System (or 16K card), first load the Applesoft language into the card (by booting the "System Master" diskette) and then boot the "Rubik's Cube Unlocked" diskette.

2. Select an option (1, 2, or 3).

Demonstration:

1. Select menu option #3.

2. Turn the diskette over, as instructed, and press any key to begin the demo.

3. Press any key to exit the demo.

READ THE FOLLOWING SECTION CAREFULLY BEFORE CONTINUING.

Cube Notation:

1. **Abbreviations:**

SIDES*	COLORS	TURNS
U = up	B = blue	+ = 1/4 rotation (90°) clockwise
F = front	G = green	− = 1/4 rotation (90°) counterclockwise
R = right	O = orange	2 = 1/2 rotation (180°) either direction
B = back	R = red	
L = left	W = white	
D = down	Y = yellow	

2. **Layers and positions of cubes:**

← TOP LAYER
← MIDDLE LAYER
← BOTTOM LAYER
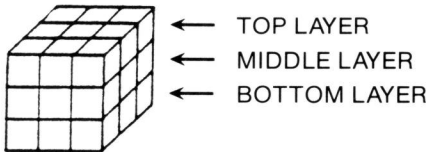
CORNER	EDGE	CORNER
EDGE	CENTER	EDGE
CORNER	EDGE	CORNER

3. **Holding the cube:**

While solving the cube, it is helpful to always hold the cube so that it matches the 3-D graphics screen. If you do not hold the cube this way, you may inadvertently turn the wrong side of the cube the wrong way. Since the color of a center cube cannot change, an easy way to remember which side is which is by remembering the color of each one's center cube.

Sides of the cube:
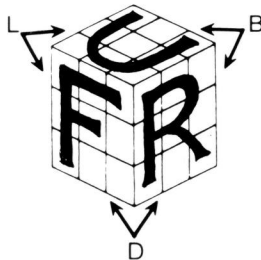
*The abbreviations for sides may seem unusual at first, but these are in standard use by cubists (people who have gone mad over the cube).

4. **Turns:**

A side can be turned in three possible ways, abbreviated: +, –, and 2.

For example, the code "U–" would mean: turn the UP side (top) 1/4 rotation counterclockwise, as demonstrated below.
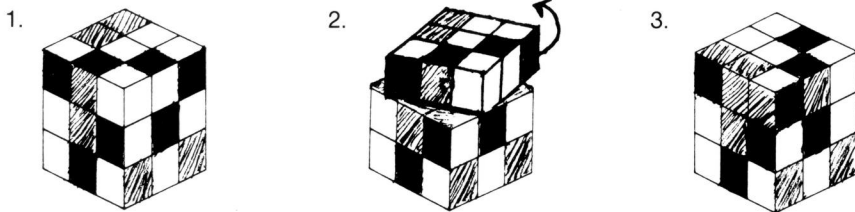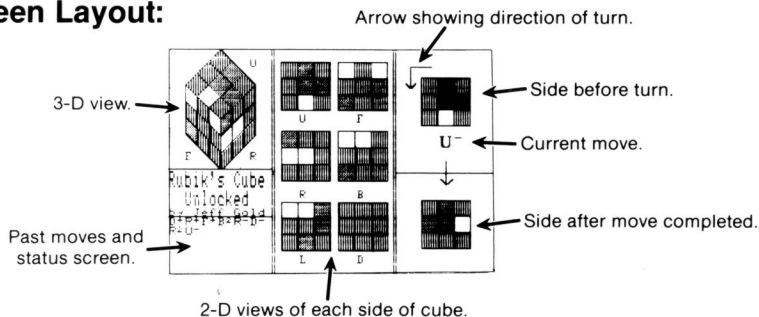
1.

2.

3.

Graphics Screen Layout:

Arrow showing direction of turn.

3-D view.

Side before turn.

Current move.

Past moves and status screen.

Side after move completed.

2-D views of each side of cube.

Solving:

1. Select option #1 or #2.

2. When the message "Load cube?" appears, press [N]. This option is for loading a cube previously saved to disk. If you wish to do this at a later time, see the information about "Save cube" under "Other options".

   DO NOT PRESS THE [RETURN] KEY AFTER AN INPUT.

3. You are now ready to enter the colors of your cube.

   a. First, you must choose which side of your cube will be which (U, F, R, B, L, and D). You may find it helpful to place labels on the center cube of each side for easy identification.

   b. In order to ensure their proper orientation, you must enter the sides in the following specified manner. When entering the "U side" (top) be sure that the front side of the cube is facing you and the "U side" is on top. When entering the "F, R, B, and L sides" be sure that the "U side" always remains on top. The "D side" is the hardest. Hold the cube with the front facing you, and then roll the cube away from you so that you are looking at the "D side".

   c. Press the letters corresponding to the colors of each spot on your cube. If you have a cube with colors different from the six given, you will have to substitute these when entering them. During this process, the arrow keys may be used for editing.

   d. If you get the message "ERROR: Color < > 9" after entering all of the colors, this means that you have entered more or less than nine of at least one of the colors. A normal cube must have exactly nine cubes of each color. Press any key, and correct your mistake (remember, you can use the arrow keys for editing).

YOU MAY NOTICE THAT CERTAIN COLORS ON A COLOR TV APPEAR TO RUN INTO EACH OTHER IN THE 3-D CUBE. THIS IS NOT A PROBLEM WITH OUR SOFTWARE, BUT RATHER, A PROBLEM WITH THE HARDWARE OF THE COMPUTER ITSELF. THERE IS NO WAY TO GET AROUND THIS PROBLEM.

4. When the message "Play cube?" appears, again press [N]. This option will take you into a mode in which you can control what turns are made upon the cube. You can also allow the computer to form a random cube in this mode. More about this later, for we want to get right down to solving the cube now.

5. The screen should now display "Now Solving: TOP EDGES". Press any key to get your first move.

6. The upper right corner of the screen should now show the side which needs to be turned, an arrow showing what direction to turn it in, and the code for the move. Before making this move on your cube, make sure that the side which you are to turn matches the one shown. After completing the turn, it should match the side pictured in the lower right of the display. Press any key for your next move.

7. The computer will now update all of the cubes and give you the next move.

8. You will be solving the cube in five sections: TOP EDGES, TOP CORNERS, MIDDLE EDGES, TOP CORNERS, and TOP EDGES. Each section will take an average of ten to thirty moves. These sections refer to layers rather than sides of the cube. Each section will proceed as in steps 5-7 above, except for the MIDDLE EDGES, described in step 9.

9. When solving the MIDDLE EDGES, you will first be prompted to hold the cube as it appears on the 3-D cube. Literally, what you are to do is just turn the cube over so that you can see the solving of the middle and bottom (now top) layers more easily. This accounts for the solving of the top layer twice. Also, if you are using labels, remember to switch them at this time. U would be exchanged with D, and F would be exchanged with B.

IF AT SOME TIME THE COMPUTER DOESN'T SEEM TO BE DOING ANYTHING, PRESS A KEY. IT MAY JUST BE WAITING FOR YOU TO ACKNOWLEDGE THAT YOU ARE FINISHED READING WHAT IT HAS TO SAY.

10. **Other options:**

    Along the way to solving the cube, you may enter some other options. To get into this mode, press [ctrl-R] when you are to hit a key to get to the next move.

TO TYPE [CTRL-R], PRESS THE KEY MARKED [CTRL] SIMULTANEOUSLY WHILE PRES-SING THE [R] KEY.

    The options which you will be prompted with are:

    1. **Play cube:** This will be discussed later.
    2. **Save cube:** This option will allow you to save a cube for use at a later time. This option requires that you have an initialized 13 sector (DOS 3.2) diskette. If you have a DOS 3.3 system, and do not have any DOS 3.2 diskettes, you might be able to obtain one from your local Apple dealer. If they cannot supply you with one, you can obtain one from Double-Gold Software for $5.00. When this option is selected, you will be prompted for a letter from A - Z. This allows you to store up to 26 different files on one diskette. After giving it a letter, you will be asked to insert a 13 sector diskette, and your cube will be saved.
    3. **Sound:** This option will allow you to turn the sound effects on or off.
    4. **Continue:** This option will continue the program.
    5. **Restart:** This option will restart the program.
    6. **End:** This option will allow you to quit the program and boot another diskette.

11. When you are finished solving the cube (HURRAY!), you will be prompted with five more options:

    1. **Play:** Instructions below.
    2. **Solve:** Select this option to solve another cube.
    3. **Patterns:** This option can be selected to make an unusual pattern on your FINISHED cube. You will be given four choices. You will then be asked whether you want to make or undo the pattern. The undo option will direct you with the moves to undo your pattern so that you can make another.
    4. **Restart:** Restarts the program.
    5. **End:** Allows you to boot another diskette.

Play Cube:

1. When entering this mode, the status screen will be cleared. The computer is now waiting for you to type in a move which will appear in the upper right block of the screen. Enter your moves in the standard code which was taught at the beginning of these instructions.

2. The move will then be shown and the computer will wait for a key to be pressed. As before, you can press [ctrl-R] here for other options.

3. Now you may give the computer its next move, or one of two other options.

   [ctrl-A]: Allows you to have the computer generate a random but solvable cube. You are prompted with how many turns the computer should make upon the cube (1 - 9). Six are more than sufficient for a random cube.

   [ctrl-E]: Allows you to exit back to solving the cube.

Fatal Error Message:

This will occur if the program encounters an error which it cannot recover from. This can be from a number of different situations. For example, if you enter a cube which is not solvable, this may occur. A cube may not be solvable if it was taken apart and put back together incorrectly.

Product Registration:

Please send in the enclosed registration card to validate our disk replacement policy and so that we may keep you informed of other fine products to be available from Double-Gold Software.

Disk Replacement Policy:

Should your disk fail within 30 days of purchase, send it back to Double-Gold for FREE replacement. After this period, we will replace it for five dollars.

Rubik's Cube Unlocked, © 1981 by Double-Gold Software.

Apple II, Apple III, and Applesoft are registered trademarks of Apple Computer Inc. Rubik's Cube is a registered trademark of Ideal Toy Corporation.

Over 20 Great Features!

- Hi-resolution graphics.
- 3-Dimensional view of cube.
- 2-Dimensional view of each side of cube.
- Extended color generation.
- Hi-res text generation for use with black and white TV.
- Upper and lowercase text without hardware modification.
- Optional sound effects.
- Easy-to-follow moves allow you to follow along and solve your own cube.
- Arrows and color graphics show you how to turn your cube with ease.
- All moves kept track of in a code standard for cubists.
- Easy-to-understand instructions.
- Easy-to-use inputting routine.
- Editing features.
- Save cube for use at a later time.
- Play cube mode allows you to manipulate the cube yourself.
- Let the computer generate a random, solvable cube.
- Create many unusual patterns on your cube.
- Written in tutorial form so that *you* can become an expert.
- Unique demo.
- Written in fast, efficient machine code.
- Completely error trapped.
- Works with DOS 3.2 or 3.3.
- Low priced.
- Much, much more…