Modify a Rubik’s Cube to create a Rubik’s Mini

Common Core: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (7.G.B.6)

Objectives:
1) Students will learn how a Rubik’s Cube (3x3) can be modified to make a Rubik’s Mini (2x2).
2) Students will create a solution guide for solving a Rubik’s Mini by modifying a solution guide for a Rubik’s Cube.

Materials:
- Crayons/marker/colored pencils
- Scissors
- Rubik’s Cubes (1 per student)
- Tape
- Making a Rubik’s Mini worksheet
- Cut outs for a Rubik’s Mini worksheet
- Making a Rubik’s Mini Solution Guide worksheet

Procedure:
1) Have students gather needed materials: Making a Rubik’s Mini worksheet, a Rubik’s Cube, coloring utensils, scissors, tape, and the cut outs for a Rubik’s Mini worksheet.

2) Students will then follow the directions on the Making a Rubik’s Mini worksheet.

3) When students finish, have them share their responses to #5 (or discuss as a class).

4) Have students complete the Making a Rubik’s Mini Solution Guide worksheet, and use it to solve their Rubik’s Mini.

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Modify a Rubik's Cube to Make a Rubik's Mini

You are going to make a Rubik's Mini.

1) Cut out 24 squares (found on the Cut-Outs page). Color them: 4 yellow, 4 blue, 4 orange, 4 red, and 4 green (leaving 4 white). The squares should measure about 1” x 1”.

2) Tape the squares onto the corner pieces of the corresponding faces.

*Do not do any taping on the edge pieces.

3) You now have a Rubik’s Mini. Turn it slowly to begin, as some pieces of paper may catch. If so, curl those edges upward.

4) Mix it up and then solve it. Have some tape nearby just in case some of your squares come loose.

5) What are the similarities and differences between solving the Rubik’s Cube and the Rubik’s Mini?

**Similarities:**

The two main similarities are solving
the first layer corners and solving the last layer corners

**Differences:**

Some of the big differences are:

Before solving, any side could be considered white (no centers)
There is no layer one cross
There is no layer 2
There is no layer 3 cross
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5) What are the similarities and differences between solving the Rubik’s Cube and the Rubik’s Mini?

Similarities:

Differences:
Cut-outs for a Rubik's Mini

Color 4 of these squares yellow, color 4 blue, color 4 orange, color 4 red, color 4 green, and leave 4 of them white. Then cut all 24 of the squares out.