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**Dale K. Hathaway.** *Finding Groups in a (New) Color Cube Puzzle.* Preliminary report.

Abstract Algebra students are given 27 small cubes, three each of nine different colors, and asked to construct a  $3 \times 3 \times 3$  cube in such a way that each color is represented exactly once on each of the 6 faces. They are then given particular operations on the blocks that result in different color arrangements while still preserving the property that each color is represented exactly once on each face. Students are asked to identify the group formed by the operations and their compositions. Since some operations lead to an identical arrangement of colors, this group has relations among the compositions of operations, which students are also asked to identify. Surprisingly, students' answers will vary depending on their initial solutions of the puzzle!

We will discuss different options for the choice of operations on the blocks, which allow this activity or project to take on varying levels of difficulty. (Received August 14, 2012)