This lesson can be adapted for younger students to practice other computational math concepts. In addition to the content math standards, students will strengthen logical thinking skills and time management.

**Texas Essential Knowledge & Skills**

**Objectives:** Students will practice adding, subtracting, and multiplying multi-digit numbers with decimals.

**Materials:**
- Rubik’s Cubes
- Pencils & paper for math calculations

**Background Knowledge:** Students should already know the procedures and rules for adding, subtracting, or multiplying multi-digit numbers with decimals.

**Mathematics 6.3D Number and operations.**

The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:

- add, subtract, multiply, and divide integers fluently;

**Mathematical Process Standard 1G - 111.XX.C.1G**

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
1. Assign a numerical value to each color on the Rubik’s Cube. For the first activity, these will be single digit numerals. (Example: Yellow = 1, Red = 3, Blue = 5, Green = 7, Orange = 9, and White = 0) Record these assignments on the board where students can reference them, and where they can be changed if desired.

2. Explain that the center tile on each face will be used to identify the face (“green face” means the face with the green tile in the center) and will also be the decimal point in the number.

3. Show students how to ‘read’ the face of the cube, by starting at the top row, reading from left to right (see example).

4. Create problems for the students and challenge them to be the student with the largest (or smallest) answer.

Example:
Red face + White face

Red face: 3195.3170
White face: 0517.9371

5. Students can also be challenged to create the largest (or smallest) answer by being allowed a few seconds to manipulate (twist) the cube after the problem is announced.
Technology Connection: If you do not have a Rubik’s Cube for each student, or want all students to use the same scramble, you can use an online Rubik’s Cube that can be scrambled at https://www.google.com/logos/2014/rubiks/iframe/index.html.

Variations

- Depending on the ability levels of your students, you can choose the operations to be used, the value of the colors, and the number of tiles to be included.

- You can use single digit numbers and practice problem solving across just one row of the cube. Start with + + and just one row of the cube, increase to + x, and then beyond. You could also focus on the four corners and use all four operations. Recommended order is + - x.

- Require that all students make at least three twists to their cube before announcing the next sequence. Allow students to make twists to create the best scenario (largest sum/product), or just to search the six sides to find their best outcome.

Notes to Teacher: 3x3 Rubik’s Cubes are available to borrow from the You CAN Do the Rubik’s Cube Lending Program at no cost other than return shipping. www.youcandothecube.com/lending-library

Thank you to Jennifer Zamora, 5th grade Math Teacher from Alvin, TX, for creating the student page that is included with this lesson.
Objective: You will practice adding, and subtracting, multi-digit numbers with decimals

The center tile on each face will be used to identify the face (“green face” means the face with the green tile in the center) and will also be used as a decimal point in the number.

To read the face of the cube, start at the top row, reading from left to right.

Must make at least 3 twists of the cube before beginning next sequence.

Example:
Red face + White face

Red face: 3195.3170
+ White face: 0517.9371
= 3713.2541