Students will use Rubik’s cubes to write number sentences with a sum of 4.

**Grade level:** Kindergarten/1st Grade

**Common Core Standards:** Kindergarten- Geometry

- A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
  - Represent addition and subtraction with objects, fingers, mental images, drawings', sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
  - Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).

**Objective:** The students will write number sentences with 2, 3 and 4 addends with a sum of 4.

**Materials:**
- 2 X 2 Rubik’s Cubes - scrambled
- Recording page
- Crayons

**Background Knowledge:** Students will need to be familiar with how to write a number sentence and will need to understand the vocabulary terms “addend” and “sum”.

**Procedure:**
**Before class:**
- Copy the recording page for each student.

**With students:**
1. Give each small group 1 Rubik’s Cube and a recording page. If the cubes are not already scrambled, have the students scramble the cube by giving it a few twists. (For a group, each student can make 3 moves, then pass to the next student, for example)
2. Have each student color the first 2 X 2 grid to match the top face of their Rubik’s cube.
3. Discuss how many colors they see on the top face of the Rubik’s Cube.

www.YouCanDoTheCube.com
4. Have each group record how many of each color are represented on the top face of the cube by coloring in the grid to match the top face of their cube.
5. Discuss which number sentence would be most appropriate for the number of colors represented on the cube. (If each color represents 1 addend, how many addends should your number sentence include?)
6. Model writing a number sentence that corresponds to the colors represented on the top face of the cube. Then, give each group time to decide how many addends their number sentence should have and to write their number sentence on the recording page.

Discussion Questions:
- Why is it possible to have a number sentence with 2, 3 or 4 addends?
- Can every color be represented on one face of the cube? Why or why not?

Notes to Teacher:
Extensions:
- Challenge students to manipulate the top face of the cube so that the number sentence that they write would only have 2 addends. Repeat the process for 3 and 4 addends.
- Have students use the top faces of 2 cubes. Discuss how many addends are possible now. Have students write corresponding number sentences.

2x2 Cubes are available for teachers to borrow from the You CAN Do the Rubik’s Cube Lending Program:
www.youcandothecube.com/lending-library/
Name: __________________________

Possible Number Sentences:

______ + ______ = 4

______ + ______ + ______ = 4

______ + ______ + ______ + ______ = 4
Name: __________________________

Possible Number Sentences:

_____ + _____ = 8

_____ + _____ + _____ = 8

_____ + _____ + _____ + _____ = 8

_____ + _____ + _____ + _____ + _____ = 8

_____ + _____ + _____ + _____ + _____ + _____ = 8