Common Core Standards:

**Kindergarten Geometry:** Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as **above**, **below**, **beside**, **in front of**, **behind**, and **next to**.

Objectives:

1. **Learn and practice relative positions terms.**
2. **Develop familiarity with the properties of a Rubik’s Cube**
3. **Practice using position terms that are relative to a Rubik’s Cube**

Materials:

1. 2x2 Rubik’s Cube
2. Small different colored math manipulatives such as dinosaur or bear counters
3. Index cards

Background Knowledge:

In order to solve a Rubik’s Cube students need to have a good understanding of the terms “right”, “left”, “top”, “bottom”, “front”, and “back”.

Procedure:

**Before class:**

*Decide whether your students will work one-on-one or in partners with their Rubik’s cube.*

*Choose 2 colors of the manipulatives that you are using. Each student or pair of students will need one manipulative of each color. For the purposes of this lesson we will use red and blue.*

**With students:**

1. Give each student or partner group a Rubik’s Cube. Allow students 2-3 minutes to become familiar with the Cube. Students should practice gently twisting the faces of the Cube.
2. Give each student or partner group a set of two math manipulatives such as a dinosaur or bear counter. One manipulative should be red, the other should be blue.
3. Have students place the blue manipulative on the far left side of the desk and the red manipulative on the far right side of the desk. Model the location of left and right for students and check that all students have placed their manipulatives in the correct locations.
4. Give each student or partner group 2 index cards. Guide students to write the word left on one card and the word right on the other card. Model placing the word “left” under the blue manipulative and placing the word “right” under the red manipulative.

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5. Have students place the Rubik’s Cube in the center of the desk. Model how to slide the Rubik’s Cube to the left (toward the blue bear) and to the right (toward the red bear). Have students practice moving the Cube to the left side of the desk, returning the Cube to the center of the table then moving the Cube to the right side of the desk.

6. Randomly call “left” and “right”. Students should listen for the direction and move the Cube to the correct side of their desk. After students have moved their cubes to the correct side of the desk, have them slide their Cubes back to the center.

7. Once students gain confidence, you can remove the red/blue manipulatives and continue the activity.

Finally, remove the “left” and “right” index cards from student desks and have students remember on their own which side of the desk is left and right.

**Notes to Teacher:** This lesson is part 2 in a 3-part series.

Once your students have mastered left and right, you can teach them to move the Rubik’s Cube properly. Teach students how to move the left and right faces of the Cube. Gradually add the terms Right Inverse and Left Inverse. Keep practicing Right, Right Inverse, Left and Left Inverse until students have mastered using these terms with the Rubik’s Cube.