

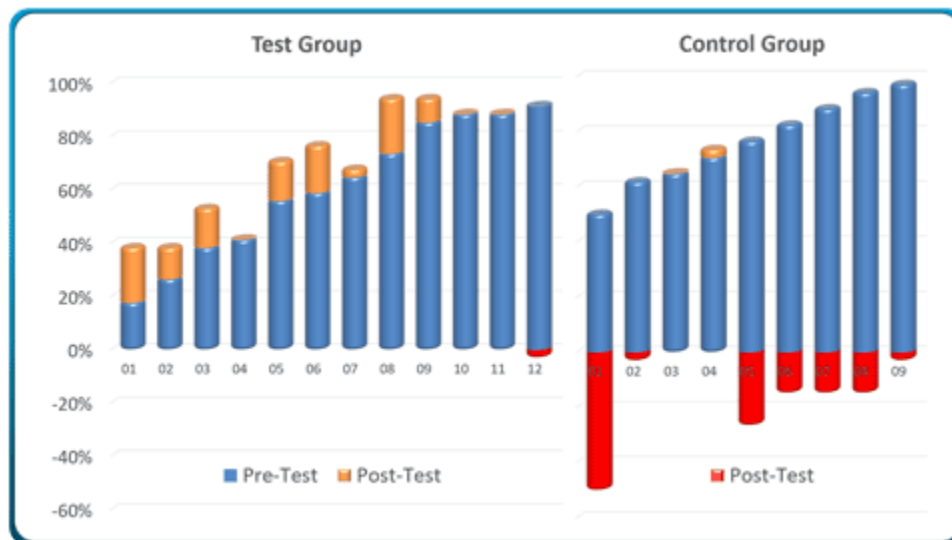
## Randomized Control Group Study #1

This study was administered in the spring of 2018 in a 3<sup>rd</sup>-Grade class at Edgemont Elementary School in Provo, UT.

All students were given a pencil and paper pre-test based on the Engage NY curriculum. The test covered the first half of 3<sup>rd</sup>-grade fraction standards.

After the pre-test, half of the students were randomly selected to play the Fractions program from EdTech games, while the other half worked in a fact fluency program. Students ultimately played the game for roughly 2 hours, spread across 4 sessions, and then a written post-test was administered to all students.

The average post-test score of the Fractions group was 12% higher than the average post-test score of the Control group. If you remove the students who began higher than 85% and therefore had little room to improve, the Fractions group improved 16% more than the Control group.

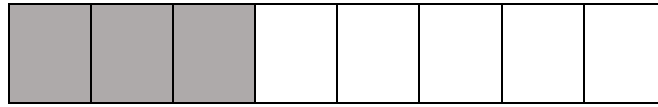


Small note: The post-test was administered on the last day of class so students were a bit distracted, which is why you will notice a general downward trend to performance. In a more balanced setting, both groups would likely have scored a bit better.

The Pre-Test is included on the following page. The post-test was identical, but with slightly different variables. Students used IDs rather than names to remove bias.



Lunch #: \_\_\_\_\_

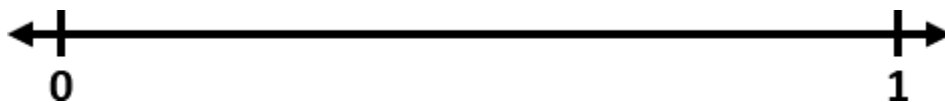


1. Natalie folded 1 whole fraction strip as pictured above.
  - a) How many equal parts did she divide the whole into?
  - b) Label each equal part with a unit fraction.
  - c) What fraction of the strip is shaded?
  - d) What fraction of the strip is NOT shaded?

2. Partition the Fraction strip and select the fraction:  $\frac{4}{5}$



3. Partition the number line and mark the fraction  $\frac{5}{6}$



4. Michael cut his birthday cake into 8 pieces. Everyone at the party received one piece. There were 2 pieces left over.

- a. How many friends were at the party?
- b. What fraction of the cake did each friend get?
- c. What fraction of the cake was left over?
- d. Draw a picture that shows how the cake was divided and how much was left.

5. Jerry cut his licorice rope into 6 equal pieces. He ate half the licorice. His sister, Eliza, ate 2 pieces. The dog ate the rest.

- a. How many pieces did Jerry eat?
- b. What fraction did Eliza eat?
- c. What fraction did the dog get?
- d. Use a number line to model how Jerry partitioned the licorice rope. Label each fraction on the number line and show how much licorice each person received.

