

Scaling Recipes  
A Proportions Activity for Middle School  
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**Objectives:** This activity addresses the following CCSS-M standards from 7<sup>th</sup> grade.

- **CCSS.Math.Content.7.RP.A.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks  $\frac{1}{2}$  mile in each  $\frac{1}{4}$  hour, compute the unit rate as the complex fraction  $\frac{1/2}{1/4}$  miles per hour, equivalently 2 miles per hour.
- **CCSS.Math.Content.7.RP.A.2b** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

**Lesson Description:** In this activity, students will scale a recipe for trail mix using proportional reasoning. Students will work in groups to scale the recipes using their understanding of proportion. At the end of the activity I typically have students make trail mix according to their new recipe.

**Note:** Some of the problems require the simplification of complex fractions. The activity can be made appropriate for 6<sup>th</sup> grade by changing the numbers in the original recipes to whole numbers.

**Extension for advanced students:** The following question can be added to the activity for students that are interested in exploring how proportional reasoning can be used to convert quantities to different units

5. Your group only has a Tablespoon and a  $\frac{1}{4}$  cup to measure out the ingredients. Rewrite the measurements in your new recipe using only these two quantities. Use the fact that 1 cup = 16 Tablespoons and  $\frac{1}{4}$  cup = 4 Tablespoons to help you.

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of rice Chex

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of corn Chex

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of marshmallows

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of pretzels

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of chocolate chips

\_\_\_\_\_  $\frac{1}{4}$  cups + \_\_\_\_\_ Tablespoons of raisins

## Trail Mix Activity

You and your group will be making trail mix. The recipe is for 12 cups of trail mix. Your group needs to rewrite the recipe so that it will make only 3 cups of trail mix

### Old recipe

4 cups of rice Chex

4 cups of corn Chex

1  $\frac{1}{4}$  cup of marshmallows

1  $\frac{1}{2}$  cups of pretzels

$\frac{3}{4}$  cup of chocolate chips

$\frac{1}{2}$  cup of raisins

### New recipe

\_\_\_\_\_ cups of rice Chex

\_\_\_\_\_ cups of corn Chex

\_\_\_\_\_ cups of marshmallows

\_\_\_\_\_ cups of pretzels

\_\_\_\_\_ cup of chocolate chips

\_\_\_\_\_ cup of raisins

1. What percent of the trail mix is made up of rice Chex in the old recipe?
2. What percent of the trail mix is made up of rice Chex in the new recipe?
3. Can you make a table that describes how much rice Chex will be required to make each amount of total trail mix?

cups of rice Chex needed	Total number of cups of trail mix
	12
	9
	6

## Trail Mix Activity

4. The following recipe serves 30 people. Find how much of each ingredient is needed to make the recipe for only 10 people.

### Puppy Chow – serves 30

1 lb. chocolate almond bark  
 $\frac{3}{4}$  c. peanut butter  
8 c. Chex cereal  
1 c. peanuts  
3 c. powdered sugar

### Puppy Chow – serves 10

\_\_\_\_\_ chocolate almond bark  
\_\_\_\_\_ peanut butter  
\_\_\_\_\_ Chex cereal  
\_\_\_\_\_ peanuts  
\_\_\_\_\_ powdered sugar