PARTY PLANNING TAKES MATH!

Warmup Activity

Activity Description

As a warmup to our next activity you will be asked to write a story that matches a given expression. We are basically doing a word problem in reverse in order to get more comfortable with word problems. On the lefthand side of the following table you are given the proportions for making sour dough bread and will first write a story that matches the equation/expression. Next, you will solve the equation: how many cups of each ingredient is the baker planning to use?

Making Sour Dough	Story
Cups of flour:	
Cups of salt:	
Cups of water:	
= cups	
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Solve the equation. How many cups of each ingredient is the baker planning to use?

Main Activity

Setting
You are about to attend a birthday potluck dinner and are asked to bring an item that feeds 20 people.
Task
Get out your technology and look up a recipe for your favorite dish. Your task is to scale up the recipe to feed 20 people.

Math Objective
The students will multiply fractions to size up the recipe,

Grade 6 Tennessee Mathematics Standards Used

Ratios and Proportion Relationships:**Students will understand ratio concepts and use ratio reasoning to solve problems.**
The Number System:**Students will compute fluently with fractions and find common factors and multiples.**

Extension This activity could be extended for 7th or 8th grade or a more lengthy 6th grade task. One possible extension would be to consider the following:

You are living on a budget and need to buy the ingredients cheap and there is only one grocery store in each direction from your house so you can only go to one. Your task would be not only to scale up your receipe, but to minimize the cost by buying the ingredients the cheepiest you can find them as a whole (given that you can only go to one grocery store).

Adapted by Cameron Cook, Suzanne Lenhart, Virginia Parkman, and Greg Wiggins

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Making Sour Dough	Story
Cups of flour: $2x$	
Cups of salt: $\frac{1}{3}x$	
Cups of water: x	
$2x + x + \frac{1}{3}x = 60$ cups	
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Solve the equation. How many cups of each ingredient is the baker planning to use?

Example Solution

Mr. Cook is making sour dough bread for his class of students. He doesn't know how much of each ingredient he needs, but he knows the proportions of his ingredients and that he needs a total of 60 cups of bread to feed his hungry class. His proportions are as follows: For every 1 cup of water, he needs 2 cups of flour and $\frac{1}{3}$ cups of water.

Equation Solution

$$2x + x + \frac{1}{3}x = 60 \implies \frac{6x}{3} + \frac{3x}{3} + \frac{x}{3} = 60 \implies$$

$$\implies \frac{10x}{3} = 60 \implies 10x = 120 \implies$$

$$\implies x = 12 \text{ cups}$$

Main Activity

Setting
You are about to attend a birthday potluck dinner and are asked to bring an item that feeds 24 people.
Task
Get out your technology and look up a recipe for your favorite dish. Your task is to scale up the recipe to feed 24 people.

Math Objective
The students will multiply fractions to size up the recipe,

Grade 6 Tennessee Mathematics Standards Used

Ratios and Proportion Relationships:**Students will understand ratio concepts and use ratio reasoning to solve problems.**
The Number System:**Students will compute fluently with fractions and find common factors and multiples.**

Extension This activity could be extended for 7th or 8th grade or a more lengthy 6th grade task. One possible extension would be to consider the following:

You are living on a budget and need to buy the ingredients cheap and there is only one grocery store in each direction from your house so you can only go to one. Your task would be not only to scale up your receipe, but to minimize the cost by buying the ingredients the cheepiest you can find them as a whole (given that you can only go to one grocery store).
Example with Solution
I found a recipe for maccaroni and cheese that serves 8 people. The recipe is as follows:
4 cups dried Macaroni, 1 egg, 1/2 stick of butter, 1/4 cup flour, 2 1/2 cups milk, 1 pound of sharp cheddar, 1 teaspoon salt, 1/2 teaspoon pepper. In order to scale up to serve 24 people I need to figure out what my proportion or multiplier will be. If the recipe is currently for 8 and I need it for 24 I set up the equation: $8x = 24$ and see that $x = 3$. So, I need to multiple each of my ingredient measurements by 3. This yields:
4×3 cups Macaroni, 1×3 egg, $\frac{1}{2} \times 3$ stick of butter, $\frac{1}{4} \times 3$ cup flour, $\frac{5}{2} \times 3$ cups milk, 1×3 pound of sharp cheddar, 1×3 teaspoon salt, $\frac{1}{2} \times 3$ teaspoon pepper.

Hence; we need the following of each ingredient:
12 cups Macaroni, 3 egg, $\frac{3}{2}$ stick of butter, $\frac{3}{4}$ cup flour, $\frac{15}{2}$ cups milk, 3 pound of sharp cheddar, 3 teaspoon salt, $\frac{3}{2}$ teaspoon pepper.

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