Illustrative Mathematics

5.NF Salad Dressing

Alignments to Content Standards

- Alignment: 5.NF.A.2
- Alignment: 5.NF.B.7.c

Tags

Tags: Lesson Plan Included

Aunt Barb's Salad Dressing Recipe
• $\frac{1}{3}$ cup olive oil • $\frac{1}{6}$ cup balsamic vinegar • a pinch of herbs • a pinch of salt Makes 6 servings

a. How many cups of salad dressing will this recipe make? Write an equation to represent your thinking. Assume that the herbs and salt do not change the amount of dressing.

b. If this recipe makes 6 servings, how much dressing would there be in one serving? Write a number sentence to represent your thinking.

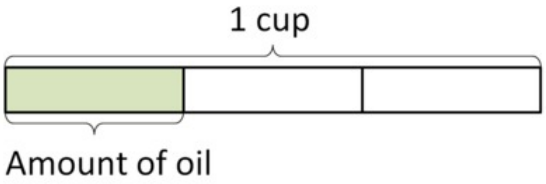
Commentary

The purpose of this task is to have students add fractions with unlike denominators and divide a unit fraction by a whole number. This accessible real-life context provides students with an opportunity to apply their understanding of addition as joining two separate quantities. Additionally, the context presents a "how many groups" division problem where a unit fraction should be divided into 6 equal groups.

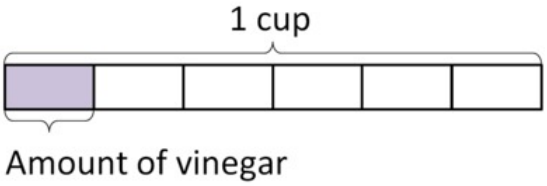
Solutions

Solution: 1

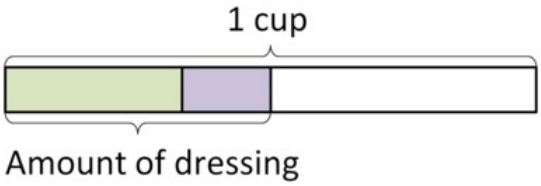
a. The total amount of dressing can be found by adding the oil and vinegar (since the other two ingredients won't change the amount). Here is a picture that represents the amount of oil:



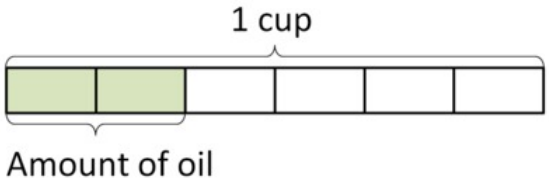
and here is a picture that represents the amount of vinegar:



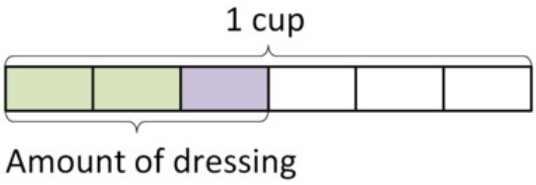
We can show the sum like this:



It is hard to tell by looking at it what fraction of the whole cup this is, but if we divide each of the thirds into two pieces, we can see how much a third is in terms of sixths:



Now we can show the sum in a way that makes it much easier to see what fraction of the whole cup it is:



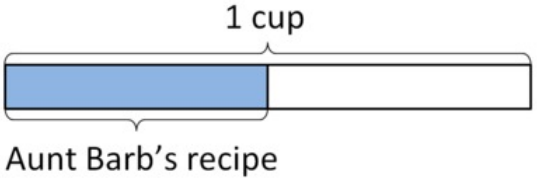
If we look carefully at the picture, we can see that $\frac{3}{6} = \frac{1}{2}$.

We can write this whole process up symbolically like this:

$$\begin{aligned} \frac{1}{3} + \frac{1}{6} &= \frac{2}{6} + \frac{1}{6} \\ &= \frac{3}{6} \\ &= \frac{1}{2} \end{aligned}$$

So the total amount of dressing will be $\frac{1}{2}$ cup.

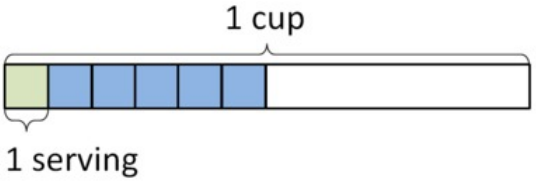
b. There is $\frac{1}{2}$ cup of dressing



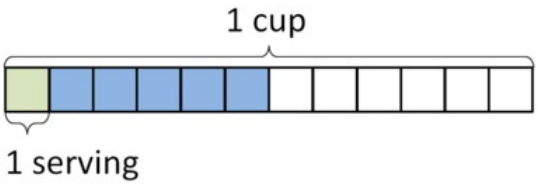
and 6 servings, so each serving is:

$$\frac{1}{2} \div 6$$

cups of dressing. We can picture this by dividing the $\frac{1}{2}$ cup of dressing into 6 equal parts:



To see what fraction of a cup this is, we should divide the other $\frac{1}{2}$ cup into 6 equal parts:



so the whole cup is divided into 12 equal parts. From the picture, we can see:

$$\frac{1}{2} \div 6 = \frac{1}{12}$$

So each serving will be $\frac{1}{12}$ cup of salad dressing.
