Fraction Multiplication Word Problems

Heidi has been feeding her dog $1\frac{1}{2}$ cups of dog food each day. The vet recently told her that this was too much food for her small dog. The vet's advice is to feed her dog $\frac{3}{4}$ of the amount she has been feeding him. Following the vet's advice, what amount of food should Heidi feed her dog?

Let's reread the problem and annotate key numbers and look for clue words. (reread problem). $1\frac{1}{2}$ is the amount that Heidi is currently feeding the dog. The vet wants her to feed the dog $\frac{3}{4}$ of the $1\frac{1}{2}$ cups she is currently feeding. To find the amount of food Heidi should be feeding her dog, we need to find $\frac{3}{4}$ of $1\frac{1}{2}$. We know "of" translates to multiplication, so the multiplication expression is $\frac{3}{4} \times 1\frac{1}{2}$. To solve this problem, we are going to use a model. Since we are finding $\frac{3}{4}$ of $1\frac{1}{2}$ we will model $1\frac{1}{2}$. $1\frac{1}{2}$ is between 1 and 2, so we will draw 2 wholes, break them into halves, and shade $1\frac{1}{2}$. So we have 1 whole and $\frac{1}{2}$. Since we have two models, we will need to cut each of the models into fourths, find $\frac{3}{4}$ of each model, and then combine. So, we take the whole, cut it into fourths horizontally, and shade 3 of the fourths. 1, 2, 3. The pieces that are double-shaded are $\frac{3}{4}$ of the whole. There are 8 total pieces, and 6 of them are double-shaded. $\frac{3}{4}$ of this whole is $\frac{6}{8}$. Now we go to $\frac{1}{2}$. We cut $\frac{1}{2}$ horizontally into fourths, and shade $\frac{3}{4}$. 1, 2, 3. The parts that are double-shaded are $\frac{3}{4}$ of this model. There are 8 total pieces, and 3 of them are double-shaded. $\frac{3}{4}$ of the $\frac{1}{2}$ is $\frac{3}{8}$. Now we combine. $\frac{6}{8} + \frac{3}{8} = \frac{9}{8}$. $\frac{9}{8}$ is an improper fraction, so we have to convert to a mixed number. 8 fits into 9 1 time, with 1 left over. $\frac{9}{8}$ as a mixed number is $1\frac{1}{8}$. Heidi should feed her dog $1\frac{1}{8}$ cups of dog food.