



Below you will find some problems and number sets that I like to pose to my students. I like for my number sets to build on one another. I usually try to relate the problem back to the students' experiences because the context helps my students reason about the problem and understand another student's strategy. For example, in the first problem, one student might not understand why another student wrote $10 \times 10 = 100$, $20 \times 10 = 200$, $30 \times 10 = 300$, ... $100 \times 10 = 1,000$ until the student who wrote those equations says something like, 10 bags with 10 cookies in each would be 100, so 20 bags with 10 cookies in each would be like 10 bags and 10 more bags which is 200 cookies.

Mrs. Kim Meyer
Mentor Teacher
Rogers, Arkansas

Measurement Division/Base 10

These problems are crucial for helping my students develop efficient multi-digit multiplication and division strategies for whole numbers.

We have ___ cookies. We put ___ cookies in each bag. How many bags do I need for all of my cookies?

(100, 10) (200, 10) (500, 10) (320, 10) (320, 32) (640, 32)

Mrs. White has collected many books over the years. She is very proud of her classroom library. Altogether, she has _____ books. She decided to organize her books onto shelves. 10 books can fit on each shelf. How many shelves will Mrs. White need for her books?

(120) (870) (1,360) (12,455)

Partitive Division

We have ___ cookies and ___ bags. How many cookies can go in each bag if each bag has the same amount?

(894, 3) (728, 4) (7578, 6) (9392, 4)

Krispy Kreme has 726 doughnuts and 6 boxes. All the doughnuts need to go in those boxes. If the doughnuts are placed equally into boxes, how many doughnuts can go in each box?

(600, 6) (726, 6) (1272, 6)

Equal Sharing Problems

Although my students solve Equal Sharing problems in third grade, few of them enter fourth grade using multiplicative coordination strategies for solving these problems. I pose Equal Sharing Problems to my students throughout the year to increase their understanding of fractional quantities. The fraction standards in fifth grade are really rigorous. The fifth grade teachers at my school tell me that my students' experience with Equal Sharing Problems in fourth grade helps them meet the fraction standards when they enter fifth grade.

_____ students are sharing _____ sticks of clay. If they share the sticks of clay equally, how much clay should each student get?

(4, 3) (8, 5) (12, 9)

I have _____ cans of frosting and _____ small cakes to frost. How much frosting should I put on each cake if I want to put the same amount of frosting on each cake?

(2, 8) (6, 8) (7, 10)

Multiple Groups

There are _____ students working on an art project. If each student needs _____ stick of clay to do the art project, how many sticks of clay are needed in all?

(16, $\frac{1}{4}$) (24, $\frac{1}{4}$) (24, $\frac{3}{4}$)

You are making _____ cupcakes. You need to put _____ cup of frosting on each cupcake. How many cups of frosting will you need?

(9, $\frac{1}{3}$) (18, $\frac{1}{3}$) (9, $\frac{2}{3}$)

I pose multiplicative comparison problems to my students throughout the school year. These are difficult problems for students and the repeated exposure supports students' understanding. I know multiplicative comparison problems provide a foundation for the proportional reasoning that students will engage with in middle school and I want to ensure that I do what I can to support their understanding.

Multiplicative Comparison (multiplication)

The soccer tryouts had 4 times as many kids try out than the basketball tryouts. The basketball tryouts had 51 kids show up. How many kids went to the soccer tryouts?

The cobra snake is 3 times as long as the garden snake. The garden snake is 48 inches long. How long is the cobra snake?

Multiplicative Comparison (measurement division)

The high diving board at the Jones Center is 12 ft tall. The low diving board is 4 feet tall. The high dive is how many times as tall as the low dive?

Dogs are all different sizes. A Great Dane is 32 inches tall. Yorkshire dogs are typically 8 inches tall. The Great Dane is how many times as tall as the Yorkshire?

Multiplicative Comparison (partitive division)

The snowfall total for Boston, MA was 44 inches last year. That was 4 times as much as the snowfall amounts for Kansas City, MO. How much snow did Kansas, MO receive last year?

The giant water slide at White Water is 90 feet tall. That is 3 times as tall as the slide at the Springdale Aquatic Center. How tall is the slide at the Springdale Aquatic Center?