

Math and Drop Bag Numbers--Fifth Grade

Common Core Standards are listed first. The activities follow, in italics.

Common Core Standards:

Operations and Algebraic Thinking 5.OA

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$ without having to calculate the indicated sum or product.*

Number and Operations in Base Ten 5.NBT

Understand the place value system.

2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5. Fluently multiply multi-digit whole numbers using the standard algorithm.
6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
 - c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ cup servings are in 2 cups of raisins?*

Students read Jodi's post. They classify the number information into these categories: food for dogs in pounds, food for dogs not in pounds, booties for dogs, food for Jodi, drinks for Jodi, clothing items for Jodi, headlamp batteries.

Write an equation using parentheses to represent the total pairs of gloves Jodi packed. $2 \times (8 + 80) = \underline{\hspace{2cm}}$.

Write an equation using parentheses to represent the number of dog booties in 18 sets, each set being 4 booties. $18 \times (4 + 0) = \underline{\hspace{2cm}}$.

If each of Jodi's drop bags weighs 50 pounds, how many pounds of food and gear would she sent out on the trail? Is this more or less than the actual amount she sent (1812 pounds)? Write a math sentence comparing the two amounts of weight, using $>$, $<$, or $=$.

Jodi packed 1812 pounds of food and gear in her drop bags. Round 1812 to the nearest hundred. What is the average weight per bag of the 50 drop bags she packed?

Jodi packed a gallon ziplock bag of snacks for herself, one for each checkpoint. How many gallon bags did she pack? (Use the race route map, don't include Fairbanks or Nome.)

How many different items are in each of her gallon snack bags? If she measured the same amount of each items, how much of each is in the bag? (5 different kinds of snacks, $1/5$ of each).

Write an addition sentence to show the fractions of snacks in her bag. $1/5 + 1/5 + 1/5 + 1/5 + 1/5 = 5/5 = 1$ whole bag of snacks

Bring different items for students to make their own small amount of trail mix. Before eating it, students count the number of each item in their mix (M&Ms, rice chex cereal, raisins, pretzels, etc.) They represent these numbers in fraction and decimal form. They also make a small graph showing their mix's items. Coffee filters make inexpensive "bowls" for their trail mix.

A friend of Jodi's made muffins for her to eat on the trail. Find a muffin recipe. Circle all the ingredients measured in fractions. Make the recipe. Write one paragraph describing making the muffins. Write another paragraph describing how they tasted.