

Activity #1

Domain: Operations and Algebraic Thinking

4OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Directions:

1. Create two problems for each of the given types of problems below. Examples are provided for each.
2. Provide an answer and explanation for how you solved each of your own original problems.

A. Unknown Product:

Example: A green scarf costs \$3. A red scarf costs 6 times as much. How much does the red scarf cost? ($3 \times 6 = p$).

B. Group Size Unknown:

Example: A book costs \$18. That is 3 times more than a DVD. How much does a DVD cost? ($18 \div p = 3$ or $3 \times p = 18$).

C. Number of Groups Unknown:

Example: A red scarf costs \$18. A blue scarf costs \$6. How many times as much does the red scarf cost compared to the blue scarf? ($18 \div 6 = p$ or $6 \times p = 18$).

Activity #2

Domain: Operations and Algebraic Thinking

4OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Directions:

1. Read the description below.
2. Complete the exercise to identify prime numbers between two and one hundred.
3. Challenge: Make a list of twenty additional prime numbers above 100. Prove that they are prime and not composite numbers.

Prime Numbers

Imagine that you are part of a class of 23 students. One day the teacher asks you to divide up into equal groups. You try to divide into 2 equal groups but find you can't do it because 23 is not evenly divisible by 2. One group is always larger than the other. Then you try to split into 3 equal groups, but that doesn't work either. And neither does 4 or 5, or any of the other numbers you try. That's because 23 is a prime number.

A prime number is a number that cannot be divided evenly by any other number except itself and the number 1. A composite number, on the other hand, is a number that can be built up by multiplying smaller numbers, called factors, together. You can make the number 4 by multiplying 2×2 . You can make the number 6 by multiplying 2×3 . So now we know that neither of these numbers is a prime number. Is 7 a prime number?

More than 2,000 years ago, the Greek mathematician Eratosthenes came up with a clever way of determining which numbers are prime. You can use this method, too. First, make a grid of all the numbers from 2 to 100 in rows of ten, like this:

	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Next, cross out all the composite numbers, leaving only the prime numbers. First circle the number 2. It is a prime number, evenly divisible only by 2 and 1. Then cross out all the multiples of 2. Each of these numbers is divisible by 2 and therefore not prime. Next, find the smallest number that has not been crossed out: 3. This number is prime, so circle it. Cross out all the multiples of 3 that have not already been crossed out. Continue by circling the smallest remaining number and crossing out its multiples. The circled numbers are the prime numbers. If you did everything right, there should be 25 prime numbers circled.

Use the space below to complete the exercise above if needed.

Use the space below to complete the challenge (#3) from the directions on the previous page.

Activity #3

Domain: Number and Operations in Base Ten

4NBT.3 Use place value understanding to round multi-digit whole numbers to any place.

Directions:

1. Use place value understanding to round numbers to solve the following problem. Show all of your work. Draw a picture and write an explanation to show how you solved the problem.

Your class is collecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each container. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected?

2. Round the following numbers to the nearest tens and hundreds.

Number	Tens	Hundreds
876		
931		
2,365		
808		
4,099		
222		
351		
3,003		

3. Create a word problem of your own in which rounding can be used to find a reasonable solution and/or to verify your solution.

Activity #4

Domain: Number and Operations—Fractions

4NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Directions:

1. Solve the following problem below using pictures, computations, or other strategies you have learned. Make sure to show all of your work in the space provided or on an additional piece of paper.
2. Then create your own story problem using parts of a whole (fractions).
3. Include a solution, picture and solution to your problem.

Problem:

Bill, Sally, Peter and Jen all went to Hershey Park, Pennsylvania. While on a tour at the Hershey's Factory, they got to reach into a bag and pull out a part of a bar of chocolate. When they left the factory, their teacher said they could eat their chocolate bars once they found out who had the largest piece of chocolate. Use the information below to solve the problem so Bill, Sally, Peter and Jen can enjoy their chocolate. *Make sure to follow the directions above.

Bill has $\frac{1}{3}$ of a bar, Sally has $\frac{4}{6}$ of a bar, Peter has $\frac{9}{12}$ of a bar, Jen has $\frac{13}{18}$ of a bar. Show how you know the answer.

Activity #5

Domain: Measurement and Data

4MD.4 Make a line plot to display a data set of measurements in fraction of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

Directions:

Use the table to complete Exercises 1-8.

1. Make a line plot of the data.
2. Identify any points that seem to stand out.
3. What fish was the largest?
4. What fish was the smallest?
5. Find the Range.
6. Find the total weight for the Carp and the Blue Catfish.
7. Are the weights of any fish clustered? If so, which ones?
8. Find similar data on a subject of interest to you and make a line plot.

Record Weights for Freshwater Fish

Fish	Weights
Bass, Largemouth	22lb 4oz
Bluegill	4lb 12oz
Carp	57lb 13oz
Catfish, Blue	77lb
Catfish, Channel	58lb
Muskellunge	69lb 15oz
Perch, White	4lb 12oz
Pike, Northern	46lb 2oz
Salmon, Atlantic	79lb 2oz
Salmon, Coho	31lb
Salmon, Pink	12lb 9oz
Trout, Brown	35lb 15oz
Trout, rainbow	42lb 2oz
Walleye	25lb