



M2C3 - Pretzel Sharing Task

Annotated Student Work

The following provides samples of student work and descriptions of the solution paths resulting from implementation of the Pretzel Sharing Task.

Making Sense of the Task: Group Warm-up – What do you wonder?

Pretzel Wonders

How many are broken?

How many are there total? ★

→ 52 serving
5 pretzels/s

How much salt is on one pretzel?

What are the ingredients?

How salty is one salt?

How many are not broken?

Are they all the same size?

What is the average size?

How many bites will it take to eat one?

How long does it take to make a pretzel?

Do all the barrels have the same amount of pretzels?

How many can somebody eat until they are full?

The pretzel container's nutritional information stated that there were 5 pretzels per serving and 52 servings per container. Most students used this information to determine how many pretzels in total were in the container.

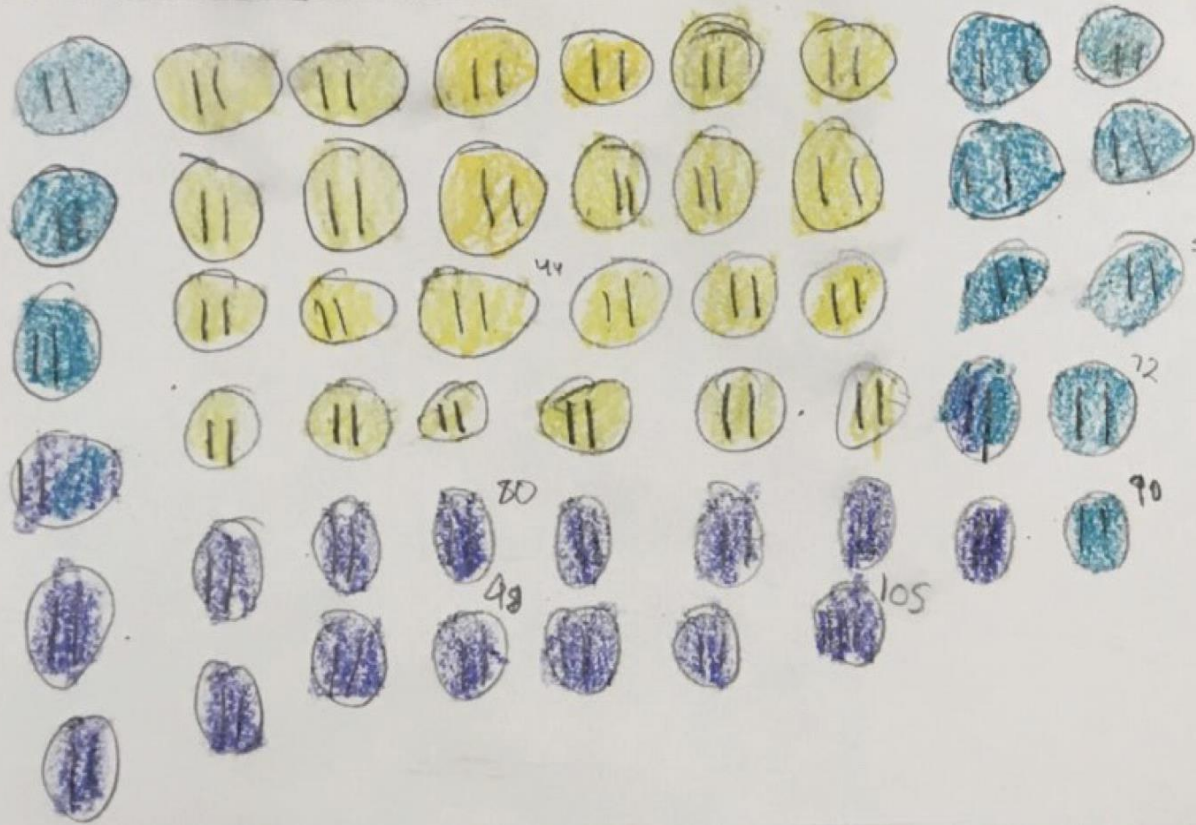
Factors that Students Considered

- How many people would be served a snack (students and teachers) in their class?
- How many days will the pretzels need to last?

Connections to Students' Experiences

- Sharing equally

The Task: Pretzels for snack



2 for 4 days
and for las day
3.

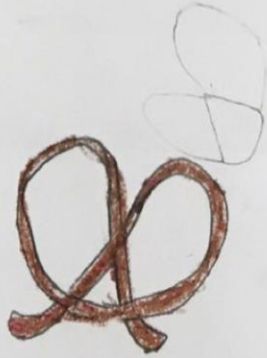
Grade
4

Each row represents one day. Nine students will receive 2 pretzels each for the 5 days. This totals 90 pretzels. Because there will be pretzels left over, each student will receive 3 on the last day. There appears to be a counting error for the last day.

4th
Grade

$$\begin{array}{r} 52 \\ \times 5 \\ \hline 260 \end{array}$$

M.	T.	W.	Th.	F.
2	2	3	3	3
pretzels each student	pretzels each student	pretzels each student	pretzels each student	pretzels each student



Each student will get 2 on Tuesday and Monday and 3 on Wednesday, Thursday, and Friday.

Day Monday	Day Tuesday	Day Wednesday	Day Thursday	Day Friday
52	52	52	52	52
-40	-40	-40	-40	-40
12	12	12	12	12
2p each	2p. each	3p. each	3p each each	3p each each

= 60 left overs
3 days that you could get one more.

Using the nutrition information on the package (5 pretzels per serving and 52 servings per container), students determined that there were 260 pretzels in the container. They also noticed that meant 260 pretzels / 5 days equaled 52 pretzels per day were available. If there are 20 students and each student gets two pretzel per day, then 40 pretzels are given out each day. That makes 12 pretzels per day left over or a total of 60 pretzels. Thus for 3 days you could give each student one more pretzel. Result : 2 pretzels each on Monday and Tuesday; 3 pretzels each on Wednesday, Thursday, and Friday

Grade 5

$$\begin{array}{r} 52 \text{ PRETZELS} \\ \times 5 \\ \hline 260 \end{array}$$

$$\begin{array}{r|l} \text{days} & \text{pretzels in one day} \\ 3 \overline{)260} & 86r2 \\ -150 & \\ \hline 110 & \\ -90 & \times 50 \\ \hline 20 & \\ -16 & \times 30 \\ \hline 2 & \times 6 \end{array}$$

$$\frac{1}{2} = \frac{6}{12} \quad \frac{1}{6} \times 2 = \frac{2}{12} \quad \frac{2}{6 \times 2} = \frac{2}{12}$$

$$\begin{array}{r} 88 \\ -260 \\ \hline 172 \end{array}$$

$$\begin{array}{r|l} \text{kids} & \text{everyone} \\ 24 \overline{)88} & 3\frac{3}{4} \\ -72 & \\ \hline 16 & \\ -12 & \times 3 \\ \hline 4 & \\ -4 & \times \frac{1}{2} \\ \hline 0 & \times \frac{1}{6} \end{array}$$

PRETZEL PLAN

$$52 \times 5 = 260$$

PRETZELS

Two-hundred-sixty divided by three equals eighty-six with a remainder of two. Eighty-six plus two equals eighty-eight. Eighty-eight divided by twenty-four equals three and three-fourths. one half equals six-twelves. ^{plus} one six equals two twelves equals eight twelves.

Using the container information students determined there were 260 pretzels per container. In this situation there are 24 students in the class and the pretzels are shared for 3 day.

Dividing the total number of pretzels (260) by 3 days they found that one could serve 86 per day remainder 2 pretzels each day.

The remainder was added to the 86 to get 88 pretzels per day to serve to 24 "kids". Dividing 88 by 24 it was determined that each student could receive 3 and $\frac{3}{4}$ pretzels per day.

Note: Adding the remainder to the quotient is a common error when dividing with remainders. It is not clear what error resulted in the sum $\frac{1}{2} + \frac{1}{6} = \frac{3}{4}$

52 Servings With 5 Pretzels in each

Serving. $52 \times 5 = 260$.

$$\begin{array}{r} 10 \times 10 \\ 25 \overline{) 260} \\ \underline{-250} \\ 10 \end{array}$$

$3\frac{1}{3}$ for each of the 3 days

because $3\frac{1}{3} \times 3 = 9\frac{3}{3}$ than $9\frac{3}{3} = 10$.

$86^r 2$ ← This is what is available

$$\begin{array}{r} 3 \overline{) 260} \\ \underline{-60} \\ 200 \\ \underline{-120} \\ 080 \\ \underline{-60} \\ 200 \\ \underline{-180} \\ 20 \end{array}$$

$$\begin{array}{r} 86 \\ \times 3 \\ \hline 258 \\ + 2 \\ \hline 260 \end{array}$$

By checking, you can see that this is right.

for 3 is 10

$3 \times 1 = 3$
 $6 \times 2 = 12$
 $9 \times 3 = 27$
 $12 \times 4 = 48$
 $15 \times 5 = 75$
 $18 \times 6 = 108$
 $21 \times 7 = 147$
 $24 \times 8 = 192$

$80 + = 83\frac{1}{3}$
 $80 + 3\frac{1}{3}$
 $83\frac{1}{3}$ is what were giving out.

We give our remainder to Mrs. Miller.

Grade 5

Students used the container information to determine there were 260 pretzels per container. There are 25 students in the class. 260 pretzels divided by 25 students equals 10 pretzels per student with 10 pretzels left over. This class is sharing the pretzels for 3 days.

10 pretzels per student divided by 3 days equals 3 and 1/3 pretzels per day for each student. This group then checked their answer by dividing 260 pretzels by 3 days and found they could share 86 pretzels per day with 2 left over. Created a T-Chart with number of pretzels in the first column and number of students in the second. Using skip counting they mapped 3 pretzels to 1 student, 6 to 2, etc. They stopped at 24 to 8. The next part of the check was not adequately explained. Note: This group understood that the remainder is not added to the quotient and stated that it would be given to Mrs. Miller.