



# M2C3 – Cafeteria Waste Task

Annotated Teacher and Student Work

The following provides Grade 3 and Grade 4 solutions to the Cafeteria Waste Task.

### Grade 3

With 24 students in the class and 5 school days in a week, student multiplied to find that 120 trays and 120 forks could be used each week. They multiplied  $5 \times 24 = 5(20+4) = 100 + 20 = 120$ .

The six Grade-3 classes would throw away  $6 \times 240$  items each week. The students used a traditional multiplication algorithm and repeated addition to multiply  $6 \times 240$  finding a product of 1440 both times.

How many Plates and Forks are we using per daily, weekly, monthly.

$\begin{array}{r} \times 24 = \text{Students} \\ 5 = \text{Days} \\ \hline \end{array}$

$4 - 5 \times 4 = 20$   
 $20 \times 5 = 100$  120 per week

We got 120 because we did  $5 \times 4 = 20$  and  $5 \times 20 = 100$  so we added 120 so we got 120

$100 + 20 = 120$  forks  
 $+ 120$  trays  
 $\boxed{240}$  items in the trash per week for our class.

$\begin{array}{r} M = 240 \quad 1 \\ O = 240 \quad 2 \\ B = 240 \quad 3 \\ E = 240 \quad 4 \\ R = 240 \quad 5 \\ B = 240 \quad 6 \\ \hline 1440 \end{array}$  items trash per week

$\begin{array}{r} \times 240 \\ \times 6 \\ \hline 1440 \end{array}$

# Grade 3

Grade 3 students estimated that students at their school used 240 trays per day for lunch.

In the month of February, they used 4,320 trays.

They measured tray height, and if about 90 stacked trays measured one foot, then 4,320 stacked trays would be as tall as a 5 story building!

Array

$18 \times 240 =$

Days of school in February      Around trays used a day

1600  
2000  
400  
+ 320  
4,320

Number of trays in February

$8 \times 200 = 1600$   
 $200 \times 10 = 2000$   
 $10 \times 10 = 100$   
 $10 \times 10 = 100$   
 $10 \times 10 = 100$   
 $10 \times 10 = 100$   
2,000

$4,320 \div 90 = 48$

$90 \times 10 = 900$   
 $90 \times 20 = 1800$   
 $90 \times 10 = 900$

$90 \times 40 = 3600$   
 $90 \times 8 = 720$   
 $3600 + 720 = 4320$

4,320 trays is about 48 feet tall. 48 feet is about 5 storey building. The storey is 10 feet tall. So we have

like a 5 storey building

# Grade 3

Students used the stacks of trays to figure out how many trays would make a stack that was about 1 foot high. They created a table to show how the number would grow to 11 feet with 1,370 trays.

4. Disposable trays are bad for Manzo. Disposable trays are bad because they make a lot of trash for landfills. Disposable trays are also bad because people have to cut down trees to make cardboard because the trays are made of cardboard. Additionally, disposable trays are not washable, and that is ~~wasting~~ because you have to throw away the trays. This is why disposable trays are bad for Manzo.

trays	Feet
	1 Feet
120	2 Feet
240	3 Feet
360	4 Feet
480	5 Feet
600	6 Feet
720	7 Feet
840	8 Feet
960	9 Feet
1080	10 Feet
1200	11 Feet
1370	

inc IF I stack the trays to 11 Feet, it will be taller and touching the ceiling.

Grade 4

This grade 4 student multiplied 24 student using trays times 5 days per week by decomposing 24 into 20 + 4 and skip counting each 5 times adding the result together.

They found that they used 120 trays each week,

Daily:  
 $24 \times 1 = 24$  We need 24 for the  
4, 8, 12, 16, 20, 24 class and for the  
day.

Weekly:

$$24 \times 5 = 120$$

$$20, 40, 60, 80, 100 + 20 = 120$$

$$4, 8, 12, 16, 20$$

We need 120 for the class  
and the week.

Monthly:  $24 \times 21 = 1,008$

$$\begin{array}{r} 120 \\ + 4 \\ \hline 480 \end{array}$$

$$\begin{array}{r} 480 \\ + 24 \\ \hline 504 \end{array}$$

$$\begin{array}{r} 504 \\ + 504 \\ \hline 1,008 \end{array}$$

trays  
forks

$$\begin{array}{r} 1,008 \end{array}$$

$$\begin{array}{r} 120 \ 15 \\ 120 \ 210 \\ 120 \ 315 \\ 120 \ 420 \\ \hline 480 \end{array}$$



Students used pictures of stacks of trays and piles of plastic forks to visualize the number of items thrown away each day across all elementary schools in the district.

