

YOGURT PACKAGING– *The Task*

A local food company produces yogurt in $\frac{3}{4}$ cup tubs.



2 cups = 1 pint
 2 pints = 1 quart
 4 quarts = 1 gallon
 16 fl oz = 1 pint

Show all your work as you answer the questions below:

1. The tubs of yogurt are sold for 75¢ each. Twenty percent of this is profit for the food company. How much profit does the company make on each tub?

2. The machine that fills the $\frac{3}{4}$ cup tubs with yogurt runs 10 hours a day for 5 days a week. It fills 1600 tubs an hour. How many gallons of yogurt are needed to fill 1600 tubs?

3. How many gallons of yogurt are produced each week?

4. What is the percent increase in production if the machine runs for 7 days a week instead of 5 days a week?

5. Each tub of yogurt contains 1.85g of fat. The company would like to reduce this amount by 15%, but instead of changing the yogurt composition, the company would like to alter the serving size. How many fluid ounces will the new container be?

6. If 1.85g is 2.85% of the recommended daily allowance (RDA) for fat grams, what is the daily fat recommendation in grams?

7. The new smaller container has what percentage of your daily value of fat?

8. Fill in the table below to compare the fat content per fluid ounce of your two products (original and new sizes) to these competitors. Which brand of yogurt is the lowest fat content per fluid ounce? Make a recommendation for the best (healthiest) brand of yogurt to eat based on your findings.

| Yogurt | Fat Content (grams) | Serving Size (cups) | Serving Size (fl oz) | Fat grams per fl oz | % Daily Recommended |
|--------------|---------------------|---------------------|----------------------|---------------------|---------------------|
| Competitor A | 2 g | 1 cup | | | |
| Competitor B | 1.45 g | $\frac{2}{3}$ cup | | | |
| Original Tub | 1.85 g | $\frac{3}{4}$ cup | | | |
| New Tub | | | | | |

YOGURT PACKAGING – *Possible Extensions*

The extensions below represent potential ways in which mathematics and/or CTE teachers can build on the task above. All of the extensions are optional and can be used in the classroom, as homework assignments, and/or as long-term interdisciplinary projects.

1. Construct a yogurt container for the original tub of yogurt ($\frac{3}{4}$ cup of yogurt) using paper and including the label (conversions required: ounces to cubic unit of measurement). Specify the empty space volume (air content).
2. Create a marketing and/or advertising plan for your yogurt that uses information about the “competitors” yogurts to formulate your plan (i.e., fat content). The plan should include a budget and potential sales projections.
3. You want to sell your yogurt abroad. Since other countries use the metric system, calculate the container sizes (in milliliters), using the conversion of 1 fluid ounce = 29.57353 milliliters, for both the original and the new smaller tub. Also determine the number of fat grams per milliliter for each.