

Bake Sale Today!

(synopsis)

To raise funds for the school's favorite charity, student council is sponsoring a bake sale. Student council is looking for your help. They only have \$500 to spend on the ingredients. You will be calculating the quantity and cost of various ingredients for your bake sale treats. You will be calculating for various servings. Eventually, you will assess if this scrumptious chocolate chip cookie recipe is a practical recipe to use.

Task 1: Create a table to show the amount of each ingredient you need to make cookies for: ten servings, thirty servings, two groups of thirty servings each, and ten groups of thirty servings.

Task 2: Using the table you created in task 1, how many kilograms of flour, granulated sugar, brown sugar, chocolate chips, and nuts do you need to make cookies for three hundred servings? How many liters of vanilla do you need to make cookies for three hundred servings?

Task 3: Estimate the cost of making cookies for three hundred servings.

Task 4: Using your results from Task 3, present your findings using exponential notation for powers of ten where possible. Write a complete explanation as to how you arrived at your total cost estimate. As part of your presentation, explain whether student council has enough money to use this recipe for 300 servings.

Tasks in Detail

Teacher Directions for Task 1:

After teaching topics 1 & 2, have students complete Task 1.

Be sure students **UNDERSTAND** the place value system and can **EXPLAIN** the patterns in the number of zeroes when multiplying and dividing by powers of 10.

Task 1: On a separate sheet of paper, create a table to show the amount of each ingredient you need to make cookies for: ten servings, thirty servings, two groups of thirty servings each, and ten groups of thirty servings each.

Assessing Task 1:

This is a Check for Understanding assessment. In order to communicate progress to parents, you can add this to either your Check Understanding category or to your Real World Experience category as a no count in your grade book.

Students can make their table in any format that displays the information. However they need to have the following: table title, headings, labels for ingredients. Be sure students' computation is correct.

Students will need a complete and accurate table for the rest of the performance tasks in this unit.

The table should look something like below:

Ingredients Needed

	10 servings	30 or (3x10) servings	60 or (6x10) servings	300 or (3 x 100) servings
Flour	45g	135 g	270g	1350g
Baking soda	0.8g	2.4g	4.8g	24g
Salt	1g	3g	6g	30g
Butter	40g	120g	240g	1200g
Eggs	1/3	1	2	10
Sugar	25g	75g	150g	750g
Brown Sugar	30g	90g	180g	900g
Vanilla	.8ml	2.4ml	4.8ml	24ml
Chocolate Chips	55g	165g	330g	1650g
Nuts	20g	60g	120g	600g

Teacher Directions for Task 2 & 3

After teaching topics 3 & 4, have students complete Task 2 and Task 3.

Be sure to refresh students understanding of the rules of rounding before they begin to work on task 3.

Be sure students can **CONVERT** units of measurement within the metric system before they complete these tasks. Be sure students can **CONVERT** denominations of money. Be sure students can **USE** conversions in multi-step problems.

Task 2: Using the table you created in task 1, how many kilograms of flour, granulated sugar, and brown sugar, chocolate chips and nuts do you need to make cookies for three hundred servings? How many liters of vanilla do you need to make cookies for three hundred servings?

Task 3: Using the prices provided and the conversions from Task 2, estimate the cost of making cookies for three hundred servings. Convert all estimates to dollars. Display your calculations and findings on a separate sheet of paper that will be shared with student council.

Assessing Tasks 2 & 3:

These are Check for Understanding assessments. In order to communicate progress to parents, you can add these to either your Check for Understanding category or to your Real World Experience category as a no count in your grade book.

Be sure students' calculations are correct as they need this information for the final task of the unit.

Answer Key for Task 2:

Flour: 1.35 kg
Granulated Sugar: 0.75 kg
Brown Sugar: 0.9 kg
Chocolate Chips: 1.65 kg
Nuts: 0.6 kg
Vanilla: 0.024 l

Answer Key for Task 3:

Flour: $1.35\text{kg} \times \$9.00 \sim \12.00
Baking Soda: $24\text{g} \times \$0.01 \sim \0.24
Salt: $30\text{g} \times \$0.10 \sim \3.00
Butter: $1200\text{g} \times \$0.05 \sim \60
Brown Sugar: $0.9\text{kg} \times \$13.00 \sim \13.00
Granulated Sugar: $0.75\text{kg} \times \$12.00 \sim \9.00
Eggs: $10 \times \$0.10 \sim \1.00
Vanilla: $0.024\text{l} \times \$10.00 \sim \0.24
Chocolate Chips: $1.65\text{kg} \times \$15.00 \sim \24
Nuts: $0.6\text{kg} \times \$15.00 \sim \8.00

Total Approximate Cost: \$106.00

All reasonable estimates should be accepted.

Teacher Directions and Scoring Guide for Task 4

After teaching topic 5, have students complete Task 4.

Task 4: Using your results from Task 3, present your findings to student council. Use exponential notation for powers of ten where possible. On a separate sheet of paper, write a complete explanation as to how you arrived at your total cost estimate. Be sure to include what you did and why you did it in your explanation. Also include your display from task 3 in your presentation. Given that student council can only spend up to \$500, evaluate if they can use this recipe.

After assessing this task, the score for task 4 will be entered in your Real World Experience category in your grade book.

Students who score Below Basic should be have the opportunity to re-do the task after additional instruction.

Task 4 Scoring Guide

Meeting

- Used exponential notation (i.e. 3×10^2).
- Estimates are reasonable (i.e. 12.50 is rounded to 13).
- Evaluated that student council does have enough money for 300 servings.
- Explanation includes what they did.
- Explanation includes why they did it.
- Conversions are accurate.
- Calculations are accurate.
- Converted to dollars.

Developing

- Meets 6 out of 8 proficient criteria

Beginning

- Meets fewer than 6 of the proficient criteria
- Task to be repeated after re-teaching

Comments:

EXAMPLE STUDENT RESPONSE

I estimate that the ingredients will cost about \$347. Student council will have enough funds to make 300 servings of chocolate chip cookies for the bake sale since they have \$500.00 to spend on ingredients. I used the conversions from task 2 and the prices provided to estimate the total cost.

I knew that we needed 1.35 kg flour

I rounded what we needed to 1kg

1 kg cost \$9

To find the cost of flour, I multiplied $1 \times 9 = 9$ and estimated **cost of flour is \$9**

I knew that we needed 24g of baking soda

1 g cost 1¢

To find the cost of baking soda, I multiplied $24 \times 1 = 24$ and estimated cost of baking soda is 24¢

I converted 24¢ to \$0.24 by dividing 24 by 100 or 10^2 since there are 100¢ in \$1; therefore, following the pattern of dividing by powers of 10 the digits shift to the right two places when dividing by 10^2

Estimated **cost of baking soda is \$.24**

I knew that we needed 30g of salt

1 g salt cost 10¢

To find the cost of salt I multiplied, $30 \times 10 = 300$ and estimated cost of salt is 300¢

I converted 300¢ to \$3 by dividing 300 by 100 or 10^2 since there are 100¢ in \$1; therefore, following the pattern of dividing by powers of 10 the digits shift to the right two places when dividing by 10^2

Estimated cost of salt is \$3

I knew that we needed 1200g of butter

1g butter cost 5¢

To find the cost of butter, I multiplied $1200 \times 5 = 6000$ and estimated cost of butter is 6000¢

I converted 6000¢ to \$60 by dividing 6000 by 100 or 10^2 since there are 100¢ in \$1; therefore, following the pattern of dividing by powers of 10 the digits shift to the right two places when dividing by 10^2

Estimated cost of butter is \$60

I knew that we needed 0.9kg of brown sugar

I rounded what we needed to 1kg

1kg cost \$13

To find the cost of brown sugar, I multiplied $1 \times 13 = 13$ and **estimated cost of brown sugar is \$13**

I knew that we needed 0.75kg of granulated sugar

I rounded what we needed to 1kg

1kg cost \$12

To find the cost of granulated sugar, I multiplied $1 \times 12 = 12$ and **estimate cost of granulated sugar is \$12**

I knew that we needed 10 eggs

1 egg cost 10¢

To find the cost of eggs, I multiplied $10 \times 10 = 100$ and estimate cost of eggs is 100¢

I converted 100¢ to \$1 by dividing 100 by 100 or 10^2 since there are 100¢ in \$1; therefore, following the pattern of dividing by powers of 10 the digits shift to the right two places when dividing by 10^2

Estimated cost of eggs is \$1

I knew that we needed 0.024l of vanilla

1l cost \$10

To find the cost of vanilla, I multiplied $0.024 \times 10 = 0.24$; therefore, following the pattern of multiplying by powers of 10, the digits shift to the left one place when multiplying by 10^1

Estimated cost of vanilla is \$.24

I knew we needed 1.65kg of chocolate chips

I rounded 1.65 to 2

1kg cost \$15

To find the cost of chocolate chips, I multiplied $2 \times 15 = 30$ and estimated cost of chocolate chips is \$30

I knew we needed 0.6kg nuts

1kg cost \$15

I rounded 0.6kg to 1kg

To find the cost of nuts, I multiplied $1 \times 15 = 15$ and estimated cost of nuts is \$15

To find the total cost, I added up the cost of all the ingredients.

\$9

\$0.24

\$3

\$60

\$13

\$12

\$1

\$0.24

\$30

\$15

\$143.48

I know that student council has \$500 to spend on ingredients. I know that my estimate of \$347 is less than \$500 which means they have enough money to buy ingredients to make 300 cookies for their sale.

Bake Sale Today!

(Student version)

To raise funds for the school's favorite charity, student council is sponsoring a bake sale. Student council is looking for your help. They only have \$500 to spend on the ingredients. You will be calculating the quantity and cost of various ingredients for your bake sale treats. You will be calculating for various servings. Eventually, you will assess if this is a practical recipe to use. Attached is the recipe for scrumptious chocolate chip cookies.

Task 1: On a separate sheet of paper, create a table to show the amount of each ingredient you need to make cookies for: ten servings, thirty servings, two groups of thirty servings each, and ten groups of thirty servings each.

Task 2: Using the table you created in task 1, how many kilograms of flour, granulated sugar, and brown sugar, chocolate chips and nuts do you need to make cookies for three hundred servings? How many liters of vanilla do you need to make cookies for three hundred servings?

Task 3: Using the prices provided below and the conversions from Task 2, estimate the cost of making cookies for three hundred servings. Convert all estimates to dollars. Display your calculations and findings on a separate sheet of paper that will be shared with student council.

1 kilogram of flour costs \$9

1 kilogram of brown sugar costs \$13

1 gram of baking soda costs 1¢

1 liter of vanilla costs \$10

1 gram of salt costs 10¢

1 egg costs 10¢

1 gram of butter costs 5¢

1 kilogram of chocolate chips costs \$15

1 kilogram of granulated sugar costs \$12

1 kilogram of nuts \$15

Task 4: Using your results from Task 3, present your findings to student council. Use exponential notation for powers of ten where possible. On a separate sheet of paper, write a complete explanation as to how you arrived at your total cost estimate. Be sure to include what you did and why you did it in your explanation. Also include your display from task 3 in your presentation. Given that student council can only spend up to \$500, evaluate if they can use this recipe.

Submitted By: NESTLE® TOLL HOUSE®

Photo By: Allrecipes

Prep Time: 10 Minutes

Cook Time: 11 Minutes

INGREDIENTS:

45 g all-purpose flour

0.8 g baking soda

1 g salt

40 g butter or margarine, softened

25 g granulated sugar

30 g packed brown sugar

0.8 ml vanilla extract

1/3 large egg

55 g NESTLE® TOLL HOUSE® Semi
-Sweet Chocolate Morsels

20 g chopped nuts

DIRECTIONS:

You have scaled this recipe's ingredients to yield a new amount (10).

1. PREHEAT oven to 375 degrees F.
2. COMBINE flour, baking soda and salt in small bowl. Beat butter, granulated sugar, brown sugar and vanilla extract in large mixer bowl until creamy. Add eggs one at a time, beating well after each addition. Gradually beat in flour mixture. Stir in morsels and nuts. Drop by rounded tablespoon onto ungreased baking sheets.
3. BAKE for 9 to 11 minutes or until golden brown. Cool on baking sheets for 2 minutes; remove to wire racks to cool completely.



Ready In: 27 Minutes

Servings: 10