





# Print & Digital Versions

## CUPCAKES GALORE BAKE SALE Baker:

Page 10, Version 2

Your teacher made this table to help her plan for how many cupcakes may be sold at the bake sale. Complete the table to show how many cupcakes there will be for each recipe.

Type of Cupcake	1 batch	5 batches	10 batches	15 batches	20 batches
cupcakes			cupcakes	cupcakes	cupcakes
cupcakes			cupcakes	cupcakes	360 cupcakes
cupcakes		300 cupcakes	cupcakes	cupcakes	cupcakes
cupcakes		cupcakes	cupcakes	cupcakes	cupcakes

[Back to Recipe Cards](#)



## CUPCAKES GALORE BAKE SALE Baker:

Page 3, Version 2

Using the information from page 2, list the ingredients in the table below that you do not have enough of for the recipes. You must determine how much more of each ingredient you will need to make both recipes. Show all calculations on your scrap paper.



My two recipes: 1. \_\_\_\_\_ 2. \_\_\_\_\_

I don't have enough of these ingredients	Total amount I have	Amount I need	Amount I still need

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# Realistic Recipes

## CUPCAKES GALORE-RECIPE CARDS

Version 2

### Chocolate Walnut Delight

#### Cupcake Ingredients

- 2  $\frac{1}{3}$  cups of flour
- 1  $\frac{1}{4}$  teaspoons of baking powder
- 1  $\frac{1}{4}$  teaspoons of baking soda
- 1  $\frac{1}{4}$  cups of white sugar
- 9 tablespoons of butter
- 1  $\frac{1}{2}$  teaspoons of vanilla
- 1 egg
- 2/3 cup of cooking oil
- 1  $\frac{3}{4}$  cups of chocolate chips, melted

#### Double Chocolate Icing Ingredients

- 1  $\frac{1}{2}$  cup of confectioners' sugar
- $\frac{3}{4}$  cup of chopped walnuts
- 5/8 cup of chocolate chips, melted
- 2/3 cup of milk

Bake at 350°F for 28 minutes.

Makes 2  $\frac{1}{2}$  dozen cupcakes.



### Cinnamon Sensation

#### Cupcake Ingredients

- 3  $\frac{2}{3}$  cups of flour
- 1 teaspoons of baking powder
- 1  $\frac{1}{2}$  teaspoons of baking soda
- 1  $\frac{1}{2}$  tablespoons of cinnamon
- 1 cup of white sugar, plus one tablespoon
- 6 tablespoons of butter
- 2  $\frac{1}{4}$  teaspoons of vanilla
- 3 egg whites
- 1 egg yolk

#### Cinnamon Butter Icing Ingredients

- 2  $\frac{1}{3}$  cups of confectioners' sugar
- 6  $\frac{1}{2}$  tablespoons of butter
- 1  $\frac{3}{4}$  teaspoons of cinnamon
- 2/3 cup of milk

Bake at 325 °F for 24 minutes.

Makes 3 dozen cupcakes.



Copy (Ctrl+C) and Past (Ctrl+v) Recipe Cards to Move to Other Slides!

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# Applicable to Real Life & Fun!

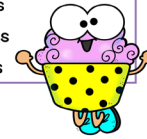
## CUPCAKES GALORE BAKE SALE

Baker:

Page 9, Version 2

You decide to make your cupcakes on Saturday. Use the recipe card and the list to the right to help you answer the questions below. Cupcake names and preparation times can be dragged below.

Cupcake	Minutes to prepare recipe
Berry Bonanza	35 minutes
Vanilla Dream	42 minutes
Chocolate Walnut Delight	50 minutes
Cinnamon Sensation	38 minutes



My two recipes: 1.

2.

1. Determine the amount of time it will take to prepare and bake both of your cupcake recipes.

Cupcake 1:

Cupcake 2:

2. If you begin making cupcake 1 at 9:00 am, what time will it be when the cupcakes come out of the oven?

3. You begin cupcake 2 after lunch at 12:30 pm. What time will you take the second cupcakes out of the oven?

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Page 8, Version 2

Number of batches

14  
15  
12  
9



ate the rest.  
e sale? Show the

n Sensation. How many of  
Cinnamon Sensation

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# Challenge Activities

## CUPCAKES GALORE BAKE SALE Baker:

Challenge 3  
Version 2

Your teacher made a list of how many cupcakes of each recipe were sold. Help her determine how much money your class earned for the new piece of playground equipment. Show all calculations.

1. Calculate the amount of money earned for each type of cupcake.

Berry Bonanza \_\_\_\_\_ Vanilla Dream \_\_\_\_\_

Chocolate Walnut Delight \_\_\_\_\_ Cinnamon Sensation \_\_\_\_\_

### Number of cupcakes sold

Berry Bonanza	333
Vanilla Dream	267
Chocolate Walnut Delight	354
Cinnamon Sensation	319

2. What is the total amount of money raised by your class?

3. How many cupcakes were not sold?

4. The total cost of the new piece of playground equipment is \$2500.00. The other class earned \$1101.50 selling brownies. Do you have enough money combined to buy the new equipment? Will there be any money left over?





## FOR THE TEACHER

**Cupcakes Galore** is a project-based learning task that offers students experience with the following standards: *Operations and Algebraic Thinking*, *Numbers in Base Ten*, and *Measurement and Data*. as they prepare to make cupcakes for a school bake fair.

- 4.OA.A.2 Multiply and divide to solve word problems involving multiplicative comparisons.
- 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the 4 operations, including problems with remainders.
- 4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- 4.NF.A.1 Explain why a fraction  $a/b$  is equivalent to a fraction
- 4.NF.A.2 Compare 2 fractions with different numerators and denominators.
- 4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- 4.MD.A.1 Know relative sizes of measurement units within one system.
- 4.MD.A.2 Use the 4 operations to solve word problems, including problems involving single fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as a number line that feature a measurement scale.

### Directions:

1. Assign students to work alone or in small groups.
2. Preview the activity with your students.
3. Allow students class time to complete the activity. This can span over several days.
4. Students will be preparing to bake cupcakes for a school bake sale.
5. Students will read and interpret recipes for making cupcakes and icing.
6. Students will solve fraction or decimal problems aligned to the CCSS NF standards.
7. Students have an opportunity to complete extra challenge activities.
8. Students will complete the self-evaluation reflection and evaluation rubric.
9. Allow students an opportunity to share their completed projects.

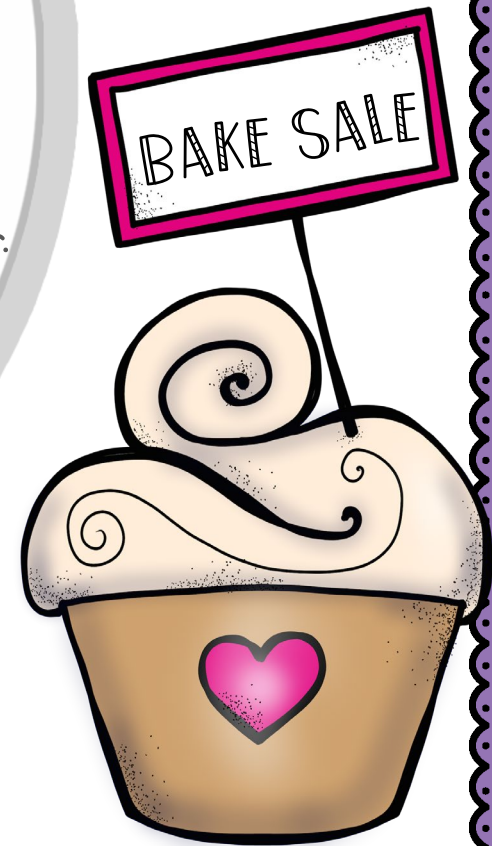


# CUPCAKES GALORE

Your grade is having a bake sale to raise money for a new piece of playground equipment. Two classes have been assigned a baked good to prepare for the sale. Your class is responsible for making cupcakes. The other class will make brownies.

Here are your tasks:

- Read through the entire packet before starting.
- Read all the recipe cards. Review all ingredients and measurements.
- Choose two recipes that you will make for the bake sale.
- Read each page carefully and follow the directions for each step of the task.
- Use scrap paper for all calculations. Label each calculation with the page number.
- Attach your scrap paper to your final project.
- Use models and drawings that illustrate the math when directed.
- Complete the self-reflection and evaluation rubric.



# CUPCAKES GALORE-RECIPE CARDS

Version 2

## Berry Bonanza

### Cupcake Ingredients

- 4  $\frac{1}{4}$  cups of flour
- 2  $\frac{1}{4}$  teaspoons of baking powder
- 2 teaspoons of baking soda
- 1  $\frac{3}{4}$  cups of brown sugar
- 16 tablespoons of butter
- 1  $\frac{1}{2}$  teaspoons of vanilla
- 4 eggs
- $\frac{2}{3}$  cup of cooking oil
- $\frac{3}{4}$  cup of your favorite jam

### Buttercream Icing Ingredients

- 1  $\frac{3}{4}$  cups of confectioners' sugar
- 8 tablespoons of butter
- 1  $\frac{1}{2}$  teaspoons of vanilla
- 1  $\frac{1}{4}$  cups of milk

Bake at 350°F for 30 minutes.

Makes 2 dozen cupcakes.

## Vanilla Dream

### Cupcake Ingredients

- 2  $\frac{5}{8}$  cups of flour
- 1  $\frac{1}{4}$  teaspoons of baking powder
- 1  $\frac{3}{4}$  teaspoons of baking soda
- 1 cup white sugar
- $\frac{1}{2}$  cup brown sugar
- 10 tablespoons of butter
- 1  $\frac{1}{4}$  teaspoons of vanilla
- 2 egg whites
- 7 tablespoons of vanilla yogurt

### Vanilla Yogurt Icing Ingredients

- 2  $\frac{1}{3}$  cups of confectioners' sugar
- 3 tablespoons vanilla yogurt
- 1  $\frac{1}{4}$  teaspoons of vanilla
- 12 tablespoons of milk

Bake at 325 °F for 25 minutes.

Makes 18 cupcakes.



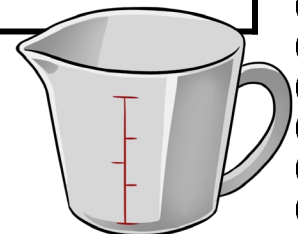




As you begin preparing the cupcakes you notice that you can only find the  $\frac{1}{4}$  cup measuring cup. You will have to use it for measuring the flour, sugar and liquid ingredients. Complete the table below and show how many  $\frac{1}{4}$  cups you will need for each ingredient for *one* of the cupcake recipes. You do not need to include the ingredients for the icing. Not all ingredients will be in the recipes you are using. On your scrap paper, draw a model that shows how you solved this problem for the *flour*.

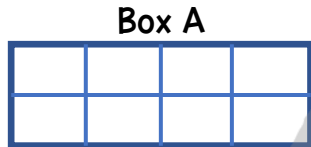
Cupcake -----

Cupcake ingredients	Is in the recipe, Y/N	Amount in recipe	Number of $\frac{1}{4}$ cups
Flour			
White sugar			
Brown sugar			
Milk			
Oil			
Chocolate			
Jam			





You must pack all your cupcakes in boxes to deliver to the bake sale. There are two different size boxes you can use. They are shown below. In the chart below, draw two ways you can pack all your cupcakes. Which arrangement leaves the fewest number of empty spaces?



Number of cupcakes in each recipe 1. \_\_\_\_\_ 2. \_\_\_\_\_ Total number of cupcakes to pack \_\_\_\_\_

Arrangement 1	Arrangement 2
Number of Box A = _____    Number of Box B = _____	Number of Box A = _____    Number of Box B = _____

Your teacher records the number of cupcakes your class is baking to help her prepare for the bake sale. Use the data to answer the questions below.

## Cupcake List

## Number of batches

Berry Bonanza	14
Vanilla Dream	15
Chocolate Walnut Delight	12
Cinnamon Sensation	9

- How many batches of cupcakes will be made by your class?
- Using the recipe cards and the data above, calculate the number of cupcakes being baked for each cupcake recipe.

Berry Bonanza \_\_\_\_\_ Vanilla Dream \_\_\_\_\_

Chocolate Walnut Delight \_\_\_\_\_ Cinnamon Sensation \_\_\_\_\_



- What is the difference between the recipe with the greatest number of cupcakes and the one with the least?
- Using the recipe cards and the data above, calculate the total number of cupcakes that will be baked for the sale.

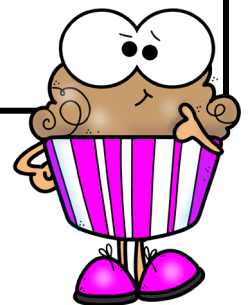


# CUPCAKES GALORE BAKE SALE

Baker: \_\_\_\_\_

Your teacher made this table to help her plan for how many cupcakes may be sold at the bake sale. Complete the table to show how many cupcakes there will be for each recipe.

Type of Cupcake	1 batch	5 batches	10 batches	15 batches	20 batches
Berry Bonanza	24 cupcakes				
Vanilla Dream					360 cupcakes
Chocolate Walnut Delight			300 cupcakes		
Cinnamon Sensation	36 cupcakes				



# CUPCAKES GALORE BAKE SALE Baker: \_\_\_\_\_

**Challenge 2**  
Version 2

You are responsible for collecting money for your cupcakes at the bake sale. Look at the cost of each type of cupcake and use the cost to complete the table below. Show all calculations on your scrap paper.

Berry Bonanza = \$1.25	Vanilla Dream = \$1.00	Chocolate Walnut Delight = \$1.50	Cinnamon Sensation = 75 ¢
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**Cupcake 1** -----

Total cupcakes made =

Cost for 1 =

Money earned for selling 10 cupcakes =

Money earned for selling  $\frac{1}{2}$  my cupcakes =

Money for selling all but 2 of my cupcakes =

Total earned selling all of my cupcake 1 =

**Cupcake 2** -----

Total cupcakes made =

Cost for 1 =

Money earned for selling 10 cupcakes =

Money earned for selling  $\frac{1}{2}$  my cupcakes =

Money for selling all but 5 of my cupcakes =

Total earned selling all of my cupcake 2 =





# CUPCAKES GALORE SELF EVALUATION

Baker: \_\_\_\_\_

**SELF-REFLECTION:** Write a reflection of your experience with this project. How did you feel about the math problems and activities? Explain what you found easy to do and any difficulties you had while working on this project. Did you enjoy this activity? Why or why not?

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Rate this project



I am ready for something harder

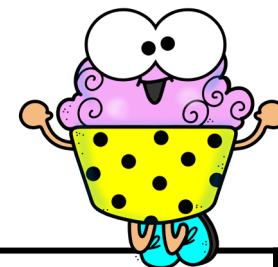
It was just right

I found this very challenging

# CUPCAKES GALORE BAKE SALE

Baker: \_\_\_\_\_

**SELF-EVALUATION RUBRIC:** Highlight or shade the parts of the rubric that express how you rate yourself on this Project Based Learning Activity.



+	✓	-
<p>I felt very confident about the math in this project.</p>	<p>I felt pretty good about my ability to complete the math in this project.</p>	<p>I felt a lot of the math in this project was too hard for me to do alone.</p>
<p>I understood all of the math and did not need help to complete the problems.</p>	<p>I understand most of the math but needed a little help to solve some of the problems.</p>	<p>I understood some of the math but needed help to complete most of the problems.</p>
<p>I easily used many strategies to solve the math problems efficiently.</p>	<p>I needed some help to determine the best strategies for solving the math problems.</p>	<p>I had trouble understanding the best way to solve many of the math problems.</p>
<p>I feel I am ready for a harder math project.</p>	<p>I feel I would like to spend more time practicing similar math problems.</p>	<p>I feel I need assistance to work on similar math problems</p>



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