

MATH BUNDLE #1

Project Based Learning

5th Grade Print & Digital

BUILD A ZOO

Project Based Learning

5th Grade
Print & Digital

Cupcakes Galore

Project Based Learning

5th Grade Math
Print & Digital



Measure Twice, Cut Once

Project Based Learning

QUILTING

th Grade Math
Print & Digit

5th Grade Math
Print & Digital

BUILDING THE EXHIBITS

FEEDING TIME

MEASURING FABRIC

... is the new quilt group.
school fair. The pr...
End...



Mag
CORE

BUILD A ZOO

Project Based Learning

5th Grade
Print & Digital

FEEDING TIME

The table below shows how much food one of each type of animal is fed per day. Use the data from the table to answer the questions.

ANIMAL	Zebra	Giraffe	Lion	Flamingo	Gorilla	Crocodile
FOOD CONSUMED PER DAY	24.25 lbs.	72.5 lbs.	13.8 lbs.	13 lb.	68.75 lbs.	2.6 lbs.

1. How much does a giraffe eat in one week? Use the box method of multiplication to show your thinking.

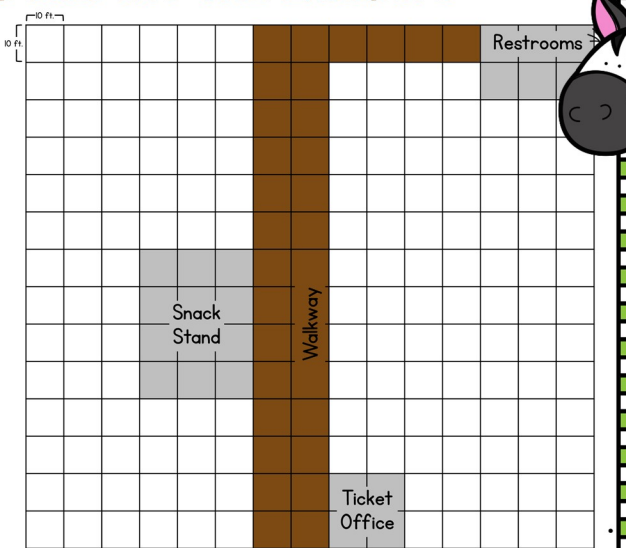
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2. How much more does a gorilla eat in one week than a zebra?

3. If the lions' meat costs \$26 a pound, how much would it cost to feed one lion for a week?

BUILDING THE EXHIBITS

Now that you've chosen your 4 animals, you must build their exhibits. On this blueprint of the zoo, each square represents an area that is 10 feet by 10 feet. Consider how large each animal is, how many of each animal you anticipate placing in each exhibit, and how much space they need to live comfortably. Using the shape  or line  tools, draw and shade the exhibit for each of your 4 animals. Use the textbox tool  to label each animal exhibit.



Print & Digital Versions

CHOOSING YOUR ANIMALS

Your first step is to choose which animals to feature in your zoo. Below are six animal types you can choose from. Think of pros and cons of including each animal type in your zoo. For example, you might consider whether an animal will be exciting to visitors or how difficult it might be to care for that type of animal. After weighing your options, choose 4 types of animal for your zoo. Circle each animal you chose.

Animal	Pros	Cons
Gorilla 		
Zebra 		
Giraffe 		
Crocodile 		
Flamingo 		
Lion 		



CHOOSING YOUR ANIMALS

Your first step is to choose which animals to feature in your zoo. Below are six animal types you can choose from. Think of pros and cons of including each animal type in your zoo. For example, you might consider whether an animal will be exciting to visitors or how difficult it might be to care for that type of animal. After weighing your options, choose 4 types of animal for your zoo. Drag a checkmark to each animal you chose. ✓

Animal	Pros	Cons
Gorilla 		
Zebra 		
Giraffe 		
Crocodile 		
Flamingo 		
Lion 		



5th Grade Math Standards Aligned

FOR THE TEACHER

BUILD A ZOO is a project-based learning task that involves using fifth grade math standards to solve problems related to building and maintaining a zoo. It is created for students in fifth grade. The following standards are addressed:

- 5.NBT.A.3 Read, write, and compare decimals to thousandths.
- 5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
- 5.NBT.B.7 Add, subtract, multiply, and divide decimals to the hundredth.
- 5.NF.A.1 Add and subtract fractions with unlike denominators.
- 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system.
- 5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit.

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 several days.
4. Allow students an opportunity to complete extra challenge activities (optional).
5. Allow students to complete the self-evaluation reflection and evaluation rubric.
6. Allow students an opportunity to share their completed projects.



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Cupcakes Galore

Project Based Learning

5th Grade Math
Print & Digital

CUPCAKES GALORE BAKE SALE Baker: _____ Page 11, Version 3

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	4 batches	10 batches	18 batches	25 batches
Recipe 1	24 cupcakes	cupcakes	cupcakes	cupcakes	cupcakes
Recipe 2	cupcakes	cupcakes	cupcakes	cupcakes	450 cupcakes
Recipe 3	cupcakes	cupcakes	300 cupcakes	cupcakes	cupcakes
Recipe 4	36 cupcakes	cupcakes	cupcakes	cupcakes	cupcakes

CUPCAKES GALORE BAKE SALE Baker: _____ Page 10, Version 3

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	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 _____

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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Interactive Movable Pieces

CUPCAKES GALORE BAKE SALE

Baker:

Page 2, Version 3

You check for the ingredients in your house to be sure you have enough. Below is a table that shows the amount of the ingredients you have at home. Determine how much you will have left after making both types of cupcakes. Show all calculations on your scrap paper.



My two recipes: 1. **Vanilla Dream** 2. **Chocolate Walnut Delight**

Ingredients	Total amount I have	Amount I need	Do I have enough? Y/N		Amount I have left
Flour	6.5 cups	5.75 cups	YES	NO	
White Sugar	3.75 cups	2.75 cups	YES	NO	
Brown Sugar	3 cups	none	YES	NO	
Baking Powder	2.5 teaspoons	2.25 tsp	YES	NO	
Baking Soda	3 teaspoons	3 tsp	YES	NO	
Butter	24 tablespoons	13 oz.	YES	NO	
Confectioners' Sugar	3.25 cups	4.5 cups	YES	NO	
Milk	5.25 cups	10.5 oz.	YES	NO	
Vanilla	3 teaspoons	3.25 tsp	YES	NO	

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[Back to Recipe Cards](#)



3 Levels of Difficulty Available

FOR THE TEACHER

Cupcakes Galore is a project-based learning task that involves using Numbers & Operations with Fractions math standards to solve problems related to baking. It can be used with students in grades 3-5.

- **Version 1** for grade 3 and differentiation in grades 4 and 5. Students work with unit fractions, addition, subtraction and multiplication and placing fractions on a number line.
- **Version 2** for grade 4 and 5. Students work with unit fractions, equivalent fractions and mixed numbers. Students will add, subtract, and multiply whole numbers and fractions.
- **Version 3** is the most challenging. Students work with decimals, fractions and mixed numbers. They will add, subtract and multiply decimals.
- Extra challenge activities can be assigned or can be optional.

Directions:

1. Assign students to work alone
2. Preview the activity with your
3. Allow students class time to c
4. Students will be preparing to
5. Students will read and interp
6. Students will solve fraction
7. Students have an opportunit
8. Students will complete the
9. Allow students an opportun

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FOR THE TEACHER

Cupcakes Galore is a project-based learning task that involves using Measurement & Data math standards to solve problems related to baking. It can be used with students in grades 3-5.

- **Version 1** for grade 3 and differentiation in grades 4 and 5. Students work with unit fractions, addition, subtraction and multiplication and placing fractions on a number line.
- **Version 2** for grade 4 and 5. Students work with unit fractions, equivalent fractions and mixed numbers. Students will add, subtract, and multiply whole numbers and fractions.
- **Version 3** is the most challenging. Students work with decimals, fractions and mixed numbers. They will add, subtract and multiply decimals, fractions and whole numbers.
- Extra challenge activities can be assigned or can be optional.

Directions:

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

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Applicable to Real Life & Fun!

CUPCAKES GALORE BAKE SALE

Baker:

Page 9, Version 3

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
Vanilla Dream
Chocolate Walnut Delight
Cinnamon Sensation

17

15

21

13



1. On the day of the sale, Jeremy brought 1 batch of Vanilla Dream cupcakes, but only 19 Berry Bonanza because his dog ate the rest. How many cupcakes did his dog eat? What is the total number of cupcakes that Jeremy brought to the bake sale?

His dog ate 6 cupcakes ($24 - 18 = 6$). In total, Jeremy brought 36 cupcakes to the sale.

2. Samantha made a double batch of Cinnamon Sensation cupcakes and kept one quarter of the second batch at home for her family. How many cupcakes did she keep at home? How many Cinnamon Sensation cupcakes did she bring to the bake sale? Draw a model that shows your thinking.

Double batch is $18 * 2 = 36$.

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[Back to Recipe Cards](#)



Measure Twice, Cut Once

Project Based Learning

QUILTING

5th Grade Math
Print & Digital

MEASURING FABRIC

The table shows the measurements for the 10 pieces of fabrics Grandmother will use to make the quilt.

	Pink Solid Fabric	Pink Print Fabric	Blue Solid Fabric	Blue Print Fabric	Gray Solid Fabric	Gray Print Fabric
Length in inches	$\frac{3}{2}$ yard	$\frac{6}{8}$ yard	$\frac{8}{9}$ yard	$\frac{2}{3}$ yard	$\frac{3}{4}$ yard	$\frac{1}{4}$ yard

1. Mark and label the fabric measurements to show where they fall on the number line.

2. Which two fractions on the number line are equivalent? Write a third fraction that is also equivalent.

3. How many pieces of fabric are longer than one yard? Name them.

FINDING PERIMETER AND AREA

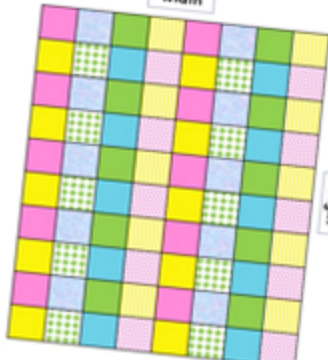
Here is the new quilt Grandmother will donate to your school. It will be used as a raffle prize at the school fair. The money that is raised from selling raffle tickets will go toward your class picnic.

1. Each square is 9.25 inches by 9.25 inches. How many inches wide is the quilt? Solve two different ways.

2. How many inches long is the quilt? Show how you know.

3. Help Grandmother find the perimeter of the quilt in inches. Then show the perimeter in yards.

4. What is the area of the quilt? Show the answer in square yards.



5th Grade Math Standards Aligned

FOR THE TEACHER

MEASURE TWICE, CUT ONCE is a project-based learning task that involves using Measurement and Geometry to solve problems related to quilt making. It addresses the following 5th grade CCSS standards:

- 5.NBT.B.6 Find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors. Illustrate and explain using equations, arrays, and/or area models.
- 5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole.
- 5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- 5.NF.B.5 Interpret multiplication as scaling.
- 5.MD.A.1 Convert among different sized standard measurement units within a given measurement system.
- 5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit.
- 5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

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 have an opportunity to complete optional extra challenge activities.
5. Students will complete the self-evaluation reflection and evaluation rubric.
6. Allow students an opportunity to share their completed projects.
7. Put students' finished quilt pieces together to create a class quilt.

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Explores Measurement & Data



MEASURING FABRIC

The table shows the measurements for the 10 pieces of fabric Grandmother is using for her 9-Patch quilt.

	Pink Solid Fabric	Pink Print Fabric	Blue Solid Fabric	Blue Print Fabric	Gray Solid Fabric	Gray Print Fabric	Purple Solid Fabric	Purple Print Fabric	Yellow Solid Fabric	Yellow Print Fabric
Length in Yards	$\frac{3}{2}$ yards	$\frac{6}{8}$ yard	$\frac{6}{3}$ yards	$\frac{2}{3}$ yard	$\frac{3}{4}$ yard	$\frac{1}{4}$ yard	$1\frac{1}{4}$ yards	$\frac{4}{3}$ yards	$\frac{1}{3}$ yard	1 yard

1. Mark and label the fabric measurements to show where they fall on the number line. Drag the vertical lines to create partitions in the number line, the dots to plot, and the textboxes to label.



2. Which two fractions on the number line are equivalent? Write another fraction that is equivalent to these two fractions.
3. How many pieces of fabric are larger than one yard? Name them.



MEASURING AND CUTTING FABRIC

Grandmother asks you to start your quilt by measuring squares. Before you cut your fabric, you must calculate the blue solid fabric. Grandmother made an 8-inch stencil.

1. Estimate how many 8-inch squares you can cut from the blue solid fabric.

I ESTIMATE I CAN CUT

8-INCH SQUARES FROM THE BLUE SOLID FABRIC.

2. Grandmother placed one stencil on the blue fabric to use as a guide. Drag the ruler to measure where you will cut the fabric. Use the line tool to draw lines to show all your cuts.

18 inches wide & 64 inches long

8-inch square stencil

BLUE SOLID FABRIC

3. How many squares will you get from the blue solid fabric? BLUE SQUARES =
4. How much extra fabric will you have leftover after cutting the 8-inch squares? Write the dimensions.

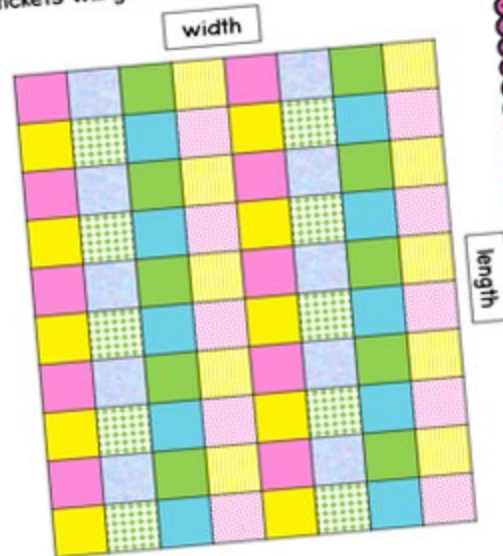


Engaging & Interdisciplinary

FINDING PERIMETER AND AREA

Here is the new quilt Grandmother will donate to your school. It will be used as a raffle prize at the school fair. The money that is raised from selling raffle tickets will go toward your class picnic.

1. Each square is 9.25 inches by 9.25 inches. How many inches wide is the quilt?
2. How many inches long is the quilt? Show how you know.
3. Help Grandmother find the perimeter of the quilt in inches. Then show the perimeter in yards.
4. What is the area of the quilt? Show the answer in square inches.



Student Self-Assessment



MEASURE TWICE, CUT ONCE

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?

This Project
a statement you most agree with
as just right. I found this very challenging

RUBRIC

SELF-EVALUATION RUBRIC Drag the circles to the parts of the rubric that express how you rate yourself on this Project Based Learning Activity.

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

