

THE COFFEE SHOP

Teacher Information

About:

- Students will be able to apply what they know about decimal operations and finding the area and circumference of circles and volume of cylinders to operating a coffee shop.

Suggestions:

1. Break students up into teams of three. The student pages are designed for groups of this size.
2. If color ink is a concern, select "print in grayscale" and print everything without color.
3. Copy the recipe cards and place in page protectors to preserve the cards and save copies.
4. Copy the Group Directions and place in a page protector to preserve the directions save copies.
5. Copy the group booklets and student booklets two per page and then front to back if your students can handle smaller writing spaces. This will allow you to print four pages on one sheet of paper.
6. Place the warm up under the document camera or provide one copy per group. Students will answer the warm up in their booklets.
7. A Unit Rate extension activity is included as the final page of the student booklet.

Materials:

- Per group –
 - One copy of the recipe cards
 - One copy of The Coffee Shop Group Directions page
 - One Coffee Shop Group Booklet
 - Crayons and/or colored pencils
 - Three pages of blank white paper
 - 11 x 14 preferred but 8x10 copy paper will be fine
- Per student –
 - One Coffee Shop Student Booklet.
 - Pencil
 - Calculator (if you choose).



THE COFFEE SHOP

Group Directions

Directions: You will need your teacher to initial each page when complete.

1. Warm Up (Student page 1)

2. Store Set Up (Group page 1)

- Work together to assign jobs and get your store up and running.

3. Donut Selections (Student page 2)

- Work independently to create two new donut recipes for the shop.

4. Ingredients Needed Pages (Student pages 3, 4, and 5)

- Use the recipes for the two donuts you've created, as well as one of the original recipes to complete the tables. You are going to need to figure out how much of each ingredient is needed to make multiple batches of the donuts. Be sure to pay attention to the serving size!

5. Store Wide Ingredients (Group page 2)

- Determine how much of each ingredient you will need for eight dozen of each type of donut.

6. Cost of the ingredients (Group page 3)

- Identify the cost of the ingredients.

7. How Many Donuts? (Student page 6)

- How many of each donut (based on size) will fit on three different trays?

8. How Much Coffee? (Student page 7)

- How much coffee will be in each of the three different sized mugs?

9. Donut Costs (Group page 4)

- As a group, decide how much to charge for each donut, based on size.

10. Get to work! (Group page 5)

- Fulfill the jobs you decided upon when you completed Group Page 1.

11. Cost of the Ingredients – Unit Rate Extension (Student page 8)

- Identify the unit rate for each ingredient listed.



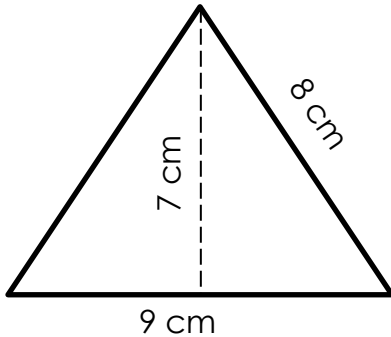
The Coffee Shop

WARM UP

Geometry Review

Name: _____

1. Find the area of a square with 14 cm sides.
2. Find the perimeter of a square with 14 cm sides.
3. Find the area of the triangle.



4. A farmer wants to fence in his backyard. His yard is 144 feet long and 90 feet deep. His house takes up 20 feet of one of the sides. How many feet of fencing will he need?

The Coffee Shop

DONUT & COFFEE SIZES



Small



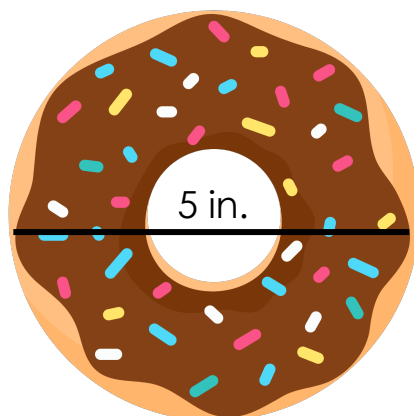
Medium



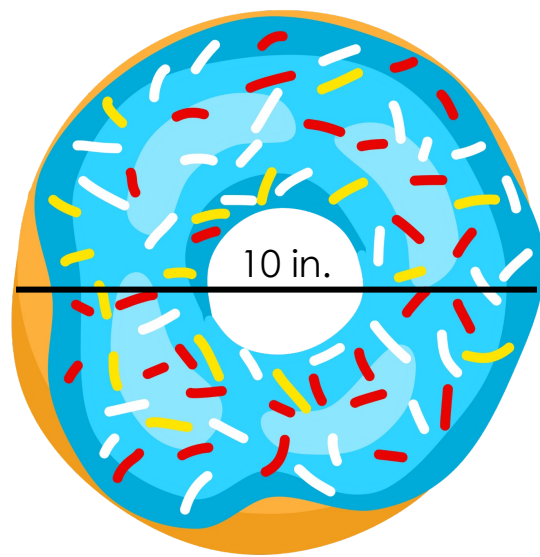
Large



Small



Medium



Large

DONUT RECIPES

SALLY'S SECRET DONUTS

1 cup powdered sugar 0.25 oz. dry yeast

$\frac{1}{3}$ cup vegetable shortening

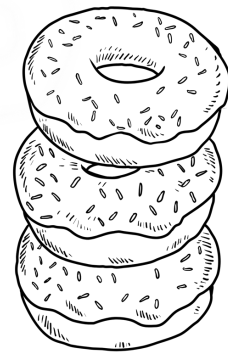
4 cups flour $\frac{1}{2}$ tsp. vanilla extract

1 tsp. white sugar

$\frac{1}{4}$ cup white sugar 2 eggs

2 quarts vegetable oil

1 tsp salt $\frac{3}{4}$ cup milk



Makes 12 donuts

APPLE CINNAMON DONUTS

2 quarts vegetable oil $2\frac{1}{4}$ cups flour

$\frac{1}{2}$ tsp. baking soda

$1\frac{1}{2}$ tsp. baking powder $\frac{1}{2}$ tsp. nutmeg.

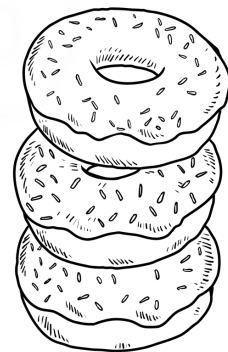
$\frac{1}{4}$ tsp. salt

$\frac{1}{2}$ cup white sugar $\frac{1}{4}$ cup brown sugar

$\frac{1}{4}$ cup milk

1 cup applesauce $\frac{1}{2}$ tsp. vanilla extract

$\frac{1}{2}$ tsp cinnamon



Makes 12 donuts

PUMPKIN SPICE DONUTS

2 cups flour 2 eggs

$\frac{1}{2}$ cup brown sugar

1 cup pumpkin puree $1\frac{1}{2}$ tsp. baking powder

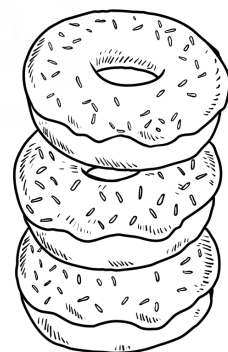
$1\frac{1}{2}$ tsp. pumpkin pie spice

$\frac{1}{4}$ cup milk 1 tsp. vanilla extract

$\frac{1}{2}$ cup butter

1 tsp salt $\frac{1}{4}$ tsp. baking soda

$1\frac{1}{2}$ cup powdered sugar



Makes 12 donuts

THE COFFEE SHOP

Group Booklet

Group Members:

Date: _____

Class: _____



STORE SET UP

Your group has decided to open a coffee & donut shop! You have \$3,000 to get the store up and running. Luckily, you can brew the coffee and bake the donuts at your house, so you do not need to pay for a place to have your store! Now it's time to make some business decisions.

- Name your shop: _____
- Why did you pick this name?

Assign a job to each person in the shop. The jobs are:

- Head of sales – this person will design a flyer to help bring business to your store.
 - This job will belong to _____
- Head of brewing & baking – this person will create new coffee & donut recipes.
 - This job will belong to _____
- Head of display – this person will design the menu board.
 - This job will belong to _____



Teacher Check _____

STORE INGREDIENTS

You are planning for a large shop opening! You have decided to make 8 dozen of each of the donut recipes on your menu (including the six new recipes). You need to purchase ingredients to get started. Using each of the individual "Ingredients Needed" pages (3 and 4) determine the total amount of everything you will need. If you don't need a certain ingredient, just leave it blank.

Flour - _____	Vegetable Oil - _____
Baking powder - _____	Powdered Sugar - _____
Dry Yeast- _____	Vegetable Shortening - _____
Salt - _____	White Sugar - _____
Eggs - _____	Vanilla Extract - _____
Butter - _____	Pumpkin Puree' - _____
Cinnamon - _____	Brown Sugar - _____
Nutmeg - _____	Milk - _____
Baking Soda - _____	Pumpkin Pie Spice- _____

Teacher Check _____



COST OF THE INGREDIENTS

Unfortunately, the ingredients are not free. The cost of the ingredients are listed in the first table.

Work together to complete the second table to show the total cost for each ingredient

Flour - \$1.00 for 6 cups	Vegetable oil - \$1.75 for 3 qts
Baking powder - \$0.75 for 8 tsp	Powdered sugar - \$2.15 for 4 cups
Dry yeast - \$0.50 per ounce	Vegetable Shortening - \$0.38 per cup
Salt - \$0.25 for 10 tsp	White Sugar - \$1.65 for 5 cups
Eggs - \$3.50 per dozen	Vanilla Extract - \$1.50 for 4 tsp
Butter - \$1.30 for 1½ cups	Pumpkin Puree' - \$ 0.17 per cup
Cinnamon - \$0.75 for 12 tsp	Brown Sugar - \$0.90 per cup
Nutmeg - \$0.50 for 30 tsp	Milk - \$3.20 for 8 cups
Baking soda - \$0.75 for 8 tsp	Pumpkin Pie Spice - \$1.00 for ¼ tsp
Applesauce - \$0.70 for one cup	

Flour - _____	Vegetable oil - _____
Baking powder - _____	Powdered sugar - _____
Dry Yeast - _____	Vegetable Shortening - _____
Salt - _____	White Sugar - _____
Eggs -- _____	Vanilla Extract - _____
Butter - _____	Pumpkin Puree' - _____
Cinnamon - _____	Brown Sugar - _____
Nutmeg - _____	Milk - _____
Baking soda - _____	Pumpkin Pie Spice - _____
Apple sauce - _____	Total cost - _____

Teacher Check _____

DONUT COSTS

Use the work you completed on the "How Many Donuts" page to complete this page. You need to find the cost for each donut. You want to make a certain amount of money for each tray sold. The amount you want to make for each tray is listed by the tray number. Based on the number of donuts that can fit on each tray, determine what you must charge for each donut to make at least the total amount listed. Round to the nearest tenth!

Tray #1 - \$97

Cost per Small Donut _____

Cost per Medium Donut _____

Cost per Large Donut _____

Tray #2 - \$55

Cost per Small Donut _____

Cost per Medium Donut _____

Cost per Large Donut _____

Tray #3 - \$220

Cost per Small Donut _____

Cost per Medium Donut _____

Cost per Large Donut _____

You must charge the same amount for each donut, regardless of which tray they are placed on.

- What will be your standard price for each donut, to make the minimum amount on each tray?



Teacher Check _____

GET TO WORK

It's time to get to work! On page 1 of your group packet, you each decided upon a job. Now it is time do show what you can do! There is a blank sheet of paper for each of you. Find your job below and follow the steps.

HEAD OF SALES

- Design a flyer to help bring business to your store.
- Be sure the flyer is neat, eye-catching and includes important information such as the names of the donuts and coffee you will be selling as well as the price.

HEAD OF BAKING

- Create 2 new donut recipes.
- Draw the donuts on the paper and include details about the flavor. Make sure the donuts look delicious – you want your co-owners to agree to have these in your store!

HEAD OF DISPLAY

- Design the menu board that will be displayed in your store.
- You want the board to be neat so customers can read it. You also want the donut names and flavors to be shown, along with the prices.



Teacher Check _____

HELPFUL INFORMATION

UNIT CONVERSIONS

- 16 tbsp = 1 cup
- 4 tbsp = $\frac{1}{4}$ cup
- 2 cups = 1 pound
- 3 tsp = 1 tbsp
- 4 quarts = 1 gallon
- 16 oz = 1 pound



VOLUME OF A CYLINDER: $\pi r^2 h$

HELPFUL INFORMATION

UNIT CONVERSIONS

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VOLUME OF A CYLINDER: $\pi r^2 h$

THE COFFEE SHOP

Student Booklet

Group Members:

Date: _____

Class: _____



The Coffee Shop

STUDENT PAGE 1 WARM UP

Record your answers to the warm-up below. Show your work.

1.	2.
3.	4.

Work Together

Discuss your answers with your group.

1. Does everyone agree on the answers? _____
2. How is the formula for the area of a triangle related to the formula for the area of a rectangle?
3. Does it matter which side of the yard the farmer's house is on in terms of finding the perimeter?
Explain why or why not?

Teacher Check _____

DONUT SELECTIONS

Independent Work

Use the recipe cards to create two different donut recipes that will be offered in your shop. Decide on a creative name for each donut!

#1 – Donut Flavor _____ Donut name _____

#2 – Donut Flavor _____ Donut name _____

Work Together

Discuss your selections with your group.

1. Did anyone create a donut like yours? If so, one of them needs to be changed slightly to make sure you have a variety of donuts in your store.
2. Did anyone else in your group create a donut with the same name? If so, one of the names will need to be changed.
3. List the names of the 6 new donuts that will be in your store.

Donut #1

Name - _____

Flavor - _____

Donut #4

Name - _____

Flavor - _____

Donut #2

Name - _____

Flavor - _____

Donut #5

Name - _____

Flavor - _____

Donut #3

Name - _____

Flavor - _____

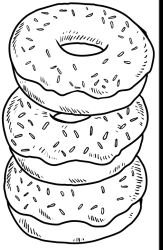
Donut #6

Name - _____

Flavor - _____

Teacher Check _____

DONUT INGREDIENTS

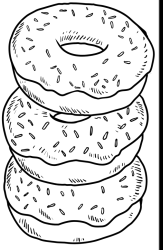


Donut #1 {Name} _____

	How much of each ingredient will you need for...		
	1 dozen donuts	4 dozen donuts	8 dozen donuts
List the ingredients for the donut.			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Teacher Check _____

DONUT INGREDIENTS

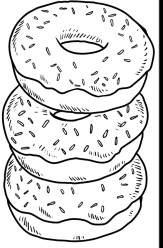


Donut #2 {Name} _____

	How much of each ingredient will you need for...		
	1 dozen donuts	4 dozen donuts	8 dozen donuts
List the ingredients for the donut.			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Teacher Check _____

DONUT INGREDIENTS



Donut #3 {Name} _____

	How much of each ingredient will you need for...		
	1 dozen donuts	4 dozen donuts	8 dozen donuts
List the ingredients for the donut.			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Teacher Check _____

HOW MANY DONUTS?

Use the "Donut & Coffee Cup Dimensions" sheet to help you complete this page.

You have three options for donut display trays. Decide how many donuts can fit on the trays of the given sizes. Draw a diagram of how the donuts could be arranged on each tray. (Pick either the S, M, or L donuts to draw!)

Tray #1: Dimensions 32 inches long x 40 inches wide

Small Donuts _____

Medium Donuts _____

Large Donuts _____

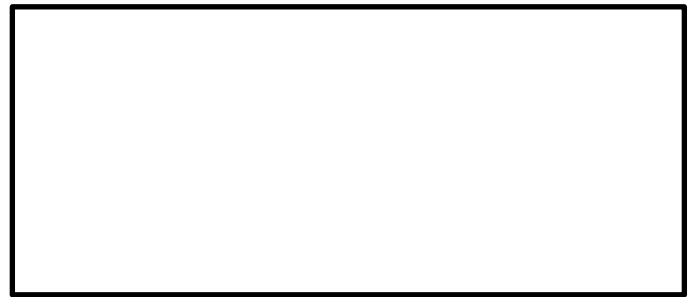


Tray #2: Dimensions 23 inches long x 30 inches wide

Small Donuts _____

Medium Donuts _____

Large Donuts _____



Tray #3: Dimensions 48 inches long x 60 inches wide

Small Donuts _____

Medium Donuts _____

Large Donuts _____



Teacher Check _____



HOW MUCH COFFEE?

Use the "Donut & Coffee Cup Dimensions" sheet to help you complete this page.

Each coffee mug is 6 inches tall. You want to find out how much coffee will be in each mug. Coffee mugs are not filled to the top since they will spill. You can only fill each mug 80%.

Small Coffee Mug

Mug Volume : _____ Coffee Volume when 80% full : _____

Medium Coffee Mug

Mug Volume : _____ Coffee Volume when 80% full : _____

Large Coffee Mug

Mug Volume : _____ Coffee Volume when 80% full : _____

Regular coffee prices are shown below:

Small = \$2.15

Medium = \$ 2.75

Large = \$3.50

Lattes are 30% more expensive than regular coffees.
Find the cost of a latte in each size.

Small latte = \$ _____

Medium latte = \$ _____

Large latte = \$ _____

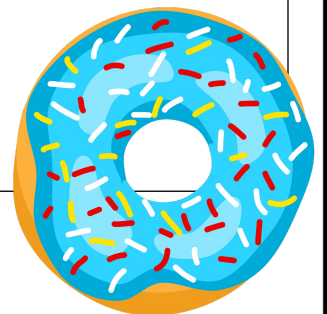
Teacher Check _____



COST OF THE INGREDIENTS

Find the unit rate for the ingredients listed below. Round to the nearest hundredth.

Flour : \$1.00 for 6 cups \$ _____ per cup	Vegetable oil : \$1.75 for 3 cups \$ _____ per cup
Baking powder : \$0.75 for 8 tsp \$ _____ per tsp	Powdered sugar : \$2.15 for 4 cups \$ _____ per cup
Pumpkin Pie Spice : \$1.00 for $\frac{1}{4}$ oz \$ _____ per ounce	Vegetable Shortening : \$0.38 for 4 oz \$ _____ per ounce
Salt : \$0.25 for 10 tsp \$ _____ per tsp	White Sugar : \$1.65 for 5 cups \$ _____ per cup
Baking soda : \$0.75 for 8 tsp \$ _____ per tsp	Vanilla Extract : \$2.50 for 4 tbsp \$ _____ per tbsp
Butter : \$1.30 for $1\frac{1}{2}$ cups \$ _____ per cup	Milk : \$3.20 for 8 cups \$ _____ per cup
Cinnamon : \$0.75 for 12 tsp \$ _____ per tsp	Nutmeg : \$0.50 for 30 tsp \$ _____ per tsp



Teacher Check _____