



3rd-5th Math: The Lemonade Stand

Students Will

- Use mathematical operations to solve real world situations.
- Utilize a chart and analyze data to answer questions.

Copies for Each Student

- Activity Worksheet Parts I & II

For the Teacher

- “The Story of the Opera”
- Activity Worksheet Parts I & II
- **ANSWER KEY**

Getting Ready

- Pencils
- Extra Notebook Paper

Instructional Time

One 45-minute class period

Introduction

Read "The Story of the Opera" with the class. Have the students discuss the idea that Manuelita owns her own business, a hotel with a kitchen that serves cupcakes.

Ask students: What kinds of services do hotels normally provide? What does Manuelita need to do as the owner to make her customers happy?

Then, ask the students to imagine that Manuelita and Miguel wanted to build a lemonade stand to attract more customers to her hotel. What might be some of the decisions they would need to make for this new business?

Guided Practice/Independent Practice

Read the instructions on the Activity Worksheet. Have the students complete both Parts I & II as instructed.

If time allows

In small groups, have the students review the chart and write three more word problems to be solved by another group in the class.

Evaluation

1. Were the students able to complete the chart in Part I with the total amounts?
2. Were the students able to answer the questions in Part II at 80% accuracy?

**TEKS
Mathematics**

Grade 3

(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A. B. D. E.)

(8) Data Analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. (A. B.)

(9) Personal Financial Literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. (A. B. C. F.)

Grade 4

(1) Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A. B.)

(2) Number and Operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. (E. F.)

(4) Number and Operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy. (A. B. G.)

(9) Data Analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. (A. B.)

(10) Personal Financial Literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. (A. B.)

Grade 5

(1) Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A. B.)

(3) Number and Operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. (A. D. E. K.)

(4) Algebraic Reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. (D. F.)

(10) Personal Financial Literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. (B. D. F.)

References

<http://oakdome.com/k5/mac/iworks-numbers/numbers-lemonade-stand.php>

The Story of the Opera

Setting: Elizondo, a Basque village in Navarre, Spain

Manuelita, the owner of the Blue Bird Hotel, tends to her garden, thinking about Pépito, her betrothed since childhood. She laments his absence, as he is serving in the military in Cádiz. Although she has not received a letter from him in four months, or seen him in three years, she has been saving up her hotel profits in order to help Pépito come home sooner so that they can be married.

Meanwhile, Vertigo, a jack of all trades, fluba player, and owner of the Hotel Crocodile (the rival hotel in town), tries to persuade Manuelita to go on a date with him. Steadfast in her devotion to her fiancé, Manuelita rejects Vertigo's advances.

Later, Manuelita sees her old friend, Miguel, who is home from college in Madrid and searching for a wife. They recall their time together as children, and Miguel realizes that he and Manuelita were destined for each other. Miguel tells her that he and Pépito exchange letters and in their latest correspondence, Pépito had informed him that he is getting married. Upon hearing this, Manuelita rejoices because she is now sure that Pépito is still faithful to her.

Always one to stir up trouble, Vertigo secretly tries to convince Miguel that Manuelita will never love him because she is already engaged to Vertigo. But Miguel is not one to give up easily. When they sit down to eat Vertigo's famous gâteau Basque with a glass of apple cider, Miguel makes sure that Vertigo stuffs himself so full that he falls asleep at the table.

With Vertigo out of the way, Miguel expresses his feelings for Manuelita and tells her that if Pépito really cared, he would have never left her. This gives Manuelita pause. However, she maintains that she is completely devoted to her promise to Pépito and leaves Miguel alone to think about how he has hurt her feelings by speaking ill of Pépito.

Vertigo wakes up and realizes that his leg has fallen asleep. He jumps up from the chair in pain and Miguel says that he deserves it because Vertigo lied about being engaged to Manuelita. Vertigo admits that Manuelita "can't stand" him. Suddenly, he realizes that he is late for a church service in San Sebastián where he has promised to play a solo on his fluba! He runs away in a panic.

Manuelita comes out of her hotel. Miguel apologizes and says that he only wants her to be happy. He is so impressed by Manuelita's virtue and loyalty to Pépito that he volunteers to take the young soldier's place in the military so that Pépito may return to marry Manuelita.

When he returns from church, Vertigo, who is also the town's postman, announces that he has just found a letter that Pépito sent to Manuelita over a year ago. Miguel hurries to open it and reads with great joy that Pépito has married another woman!

Manuelita is shocked. How could Pépito betray her? After much deliberation, Manuelita realizes that her loyalty to Pépito was not out of love, but out of the obligation to keep the promise she made so many years ago. Seizing his chance, Vertigo quickly asks Manuelita to marry him, but Manuelita declares she will marry Miguel instead, as her feelings for him are true.

Though unhappy at his own misfortune, Vertigo cannot let a lucrative business opportunity pass him by. He agrees to bake the wedding cake and play his fluba for Miguel and Manuelita, who are ecstatic that they can finally be together.

Name: _____

Date: _____

Activity Worksheet

Miguel and Manuelita have opened a lemonade stand to bring in more business to the hotel. They have decided to experiment with the pricing of the lemonade on each day for three weeks. You will look over their sales for the past three weeks and calculate the total amount earned each day. Once you have completed the chart, please use the information to answer the questions that follow.

Part I

Profit Chart

Day	Price Per Cup	Cups Sold	Total
1	0.45	22	\$
2	0.75	30	\$
3	0.45	12	\$
4	1.15	59	\$
5	0.50	17	\$
6	0.60	26	\$
7	1.05	69	\$
8	0.40	13	\$
9	0.50	16	\$
10	0.55	19	\$
11	0.60	33	\$
12	1.15	75	\$
13	0.85	52	\$
14	0.60	34	\$
15	0.55	23	\$
16	0.55	32	\$
17	0.75	52	\$
18	0.70	50	\$
19	1.10	89	\$
20	0.70	48	\$
21	0.85	67	\$

Part II

Activity Worksheet

1. How much more did they make on day 12 than on day 18?

2. If you divide the days the stand has been open into seven-day weeks, which week made the most money? _____
3. If the price of the lemonade increased \$0.12 per cup on day 21, how much more would have been earned? _____
4. If they only sold 25 cups of lemonade on day 7, what would be the new amount earned for that day? _____
5. What was the total amount earned for all three weeks? Round to the nearest hundred. _____

ANSWER KEY

Part I

Profit Chart

Day	Price Per Cup	Cups Sold	Total
1	0.45	22	\$9.90
2	0.75	30	\$22.50
3	0.45	12	\$5.40
4	1.15	59	\$67.85
5	0.50	17	\$8.50
6	0.60	26	\$15.60
7	1.05	69	\$72.45
8	0.40	13	\$5.20
9	0.50	16	\$8.00
10	0.55	19	\$10.45
11	0.60	33	\$19.80
12	1.15	75	\$86.25
13	0.85	52	\$44.20
14	0.60	34	\$20.40
15	0.55	23	\$12.65
16	0.55	32	\$17.60
17	0.75	52	\$39.00
18	0.70	50	\$35.00
19	1.10	89	\$97.90
20	0.70	48	\$33.60
21	0.85	67	\$56.95

Part II

- 1. \$51.25**
- 2. Week 3 - \$292.70**
- 3. \$8.04**
- 4. \$26.25**
- 5. \$700.00**