

Title: Creating the Sno-Cone Zone

Brief Overview:

Students will gain an understanding of running a small business. Students will calculate total costs of materials for their business and estimate their profit potential. Students will culminate the activity with a persuasive letter.

Links to NCTM Standards:

- **Mathematics as Problem Solving**
Students will demonstrate their ability to solve mathematical problems by investigating the cost of sno-cone supplies and determine which is more profitable, renting or buying a sno-cone machine.
- **Mathematics as Communication**
Students will demonstrate their ability to communicate mathematically by writing a persuasive letter explaining their sno-cone proposal.
- **Mathematics as Reasoning**
Students will demonstrate their ability to make decisions on the advantages and/or disadvantages of whether to buy or rent a sno-cone machine as well as choose an appropriate sale price for their sno-cones.
- **Mathematical Connections**
Students will demonstrate their ability to connect mathematics with real world business problems.
- **Computation and Estimation**
Students will demonstrate their ability to perform mathematical operations involving money, whole numbers, decimals, and percents.
- **Statistics**
Students will demonstrate their ability to collect and display data in the form of a frequency table and a circle graph. They will analyze and interpret the collected data.
- **Probability**
Students will make predictions based on their collected data.
- **Measurement**
Students will demonstrate their ability to select the appropriate units of measure.

Grade/Level:

Grade 6/7/8

Duration/Length:

This activity should take four to five days including the assessment.

Prerequisite Knowledge:

Students should have working knowledge of the following:

- Whole numbers, decimals, ratio, proportion, and percents
- Frequency tables and graphs
- How to use a calculator
- How to use the Internet (if available)

Objectives:

Students will be able to:

- collect and analyze data.
- calculate total cost of supplies.
- determine a selling cost.
- decide advantages and/or disadvantages of whether to buy or rent.
- write a persuasive letter .

Materials/Resources/Printed Materials:

- Graph paper
- Calculator
- Worksheets

Development/Procedures:

Day 1:

- Students will generate a list of supplies necessary to operate a sno-cone business. They will investigate various Internet sites with sno-cone supplies and prices (a price list is attached in the event that Internet access is unavailable).
- Each student will select their top three favorite flavors .
- Each class will complete a frequency table entitled “Class Sno-cone Preferences” (Worksheet #1).

Day 2:

- Combine the data from each individual class. Students will now list the top 6 sno-cone flavors for their entire team.(Worksheet #2, table #1,column #1).
- Students will construct a bar graph of the sno-cone flavors for their entire team. (Worksheet #2, table #1, column #2)
- From the list of top 6 flavors, students will project the number of students in the school that will prefer each of the 6 top flavors (Worksheet #2, table #1, #3)

Day 3:

- Students will analyze their data and write ratios for each flavor.
- Students will construct a circle graph of their surveyed data.
- Students will use the data to determine the quantity of each flavor to purchase (Worksheet #2, table # 2).

Day 4:

- Students will use the supply price list (Sno-Cone Information Sheet, Worksheet #6) to determine the cost of selling one sno-cone to each student in the school using PLAN A - Rented machine (Worksheet #3 -Cost Sheet Rented Machine).
- Students will use the supply price list (Sno-cone information sheet) to determine the cost of selling one sno-cone to each student in the school using PLAN B - Purchased Sno-cone machine (Worksheet #4 - Cost Sheet Purchased Machine).
- Students will construct a table to calculate profit by using Worksheets # 5 and 6. Worksheet #7 is offered as a resource for the teacher.

Day 5:

- Each student will write a persuasive letter to the PTA that reflects their decision on whether to rent or purchase a sno-cone machine (see Culminating Activity, Worksheet #8).

Performance Assessment:

Students will be assessed on their daily performance as well as their persuasive letter. Refer to the Maryland Anne Arundel County Public Schools Scoring Rubric for “Writing to Persuade” as adapted from Scoring MSPAP: A Teacher’s Guide.

Extension/Follow Up:

The students will create a sno-cone container with a specified volume .
The students can create various advertising methods to promote their sno-cone business .

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CLASS SNO-CONE PREFERENCES

Sno-Cone Flavor	Tally Marks	Total Students
Banana		
Black Raspberry		
Pink Bubble Gum		
Grape		
Orange		
Pineapple		
Root Beer		
Vanilla		
Black Cherry		
Blue Bubble Gum		
Cherry		
Lemon-lime		
Fruit Punch		
Red Raspberry		
Strawberry		
Watermelon		

SNO-CONE ZONE

STUDENT SNO-CONE PREFERENCES

Top 6 Flavors	# of Students on Team	%	Projected #of Students in School Preferring Each Flavor

TOTAL _____

How did you determine the the number of students in your school that would prefer each flavor without actually surveying the entire school?

Use the Sno-Cone information sheet to determine the # of syrup bottles of each flavor to purchase to supply each student with a sno-cone.

Gallons Quarts

Top 6 Flavors	# Projected	# of Bottles of Syrup		Total Cost

TOTAL _____

COST SHEET - RENTED MACHINE

ITEMS	COST		QUANTITY		TOTAL COST
	Gallons	Quarts	Gallons	Quarts	
Syrup					
Cups					
Spoon Straws					
Ice					
Rented Machine					
			Subtotal		
			Tax		
			Total		

Construct a table to calculate profit.

Cost	#Sold	Total Sales	Profit
\$0.25			
\$0.50			
\$0.75			
\$1.00			
\$1.25			
\$1.50			
\$1.75			
\$2.00			

Note: Profit = Total Sales - Total Cost

What is the break-even point with the selling price of sno-cones and profit?

®SNO-CONE INFORMATION SHEET

The following information will be used to calculate the cost per serving of a snow cone

Sno-Cone Machine

The perfect way to cool off on a hot summer day! Yummy strawberry and bubble gum syrups, as well as cups and straws available. Uses regular bag ice.

PLAN A

Rental Fee:
\$40 per day

PLAN B

Purchase fee:
\$1200 sno machine
ice shaver

Flavor Syrup:

\$3.90 per quart (serves 24-32 sno-cones)
\$9.90 per gallon (serves 96-128 sno-cones)

8oz. Cups:

60¢ per 25 count

Spoon Straws:

\$2.50 per box of 200

Bags of ice

\$1.00 10 lb. bag (serves 40 sno-cones)

PROFIT POTENTIAL

Cost Per Serving	Profit Potential
Syrup (1oz.) 2.2 ¢	Suggested Retail \$ 2.00
Sno-Kone Cup 3.0 ¢	
Spoon Straw 1.0 ¢	Less Your Cost \$ 0.062
Total Cost 6.2 ¢	Your Profit \$ 1.938

The above example shows the cost per sno-cone and profit potential if students choose to sell sno-cones at \$2.00 each. The profit will change depending on the price each group decides to sell the sno-cones for, and they will also have to consider renting opposed to buying a machine.

The following web sites were used to determine the costs:

- <http://www.funjumps.com/directory.html>
- <http://www.riosyrup.com/products.html>
- <http://www.mackay.net.au/~snow/home.html>

The FunFoodZ Company
 500 S. Kentucky Ave..
 Evansville, IN 47714
 Tel. (toll free): 1-800-489-3609
sales@hi-profit.com

You can find many websites by searching the web using the following spellings in your search: "snow cones", "sno-cones", "sno-kones".

Culminating Activity

Writing Prompt

Now that you have planned your sno-cone zone fund raiser, write a letter to your principal /PTA persuading them to allow you and your classmates to sell snow-cones. Be sure to include previous justifications to help in your argument.

Before you begin to write, think about:

- what the cost per sno-cone will be
- how to justify projected profits of renting opposed to buying
- explain when and where you will sell the sno-cones
- benefits for school and students
- how will you advertise your fund-raiser