# **Portfolio Pizza Party**

I promised you a portfolio celebration and was thinking about a pizza party. I would like to figure out what it would cost. How much pizza would 16 math students eat? What toppings would you choose? Please help me figure this out! Make sure your solution is easy for me to understand!

Here are the facts:

If I order the pizza from Jay's Pizzeria it costs \$12.95 for a small pizza with 6 slices and \$13.95 for a large pizza with 8 slices. Extra toppings for a small pizza cost \$1.25 each and for a large pizza they are \$1.45 each.

How many pizzas should I order? How many pieces will everybody get? Will everybody eat the same amount? What kind of pizzas should we order? How much will this cost? Let's see if it is affordable! Grade Levels 3 - 5

## Portfolio Pizza Party

I promised you a portfolio celebration and was thinking about a pizza party. I would like to figure out what it would cost. How much pizza would 16 math students eat? What toppings would you choose? Please help me figure this out! Make sure your solution is easy for me to understand!

Here are the facts:

If I order the pizza from Jay's Pizzeria it costs \$12.95 for a small pizza with 6 slices and \$13.95 for a large pizza with 8 slices. Extra toppings for a small pizza cost \$1.25 each and for a large pizza they are \$1.45 each.

How many pizzas should I order? How many pieces will everybody get? Will everybody eat the same amount? What kind of pizzas should we order? How much will this cost? Let's see if it is affordable!

### Context

The students in my math class were in charge of figuring out how much money it would cost for a pizza party and how much pizza we needed to order. This party planning was for a real celebration we were having in honor of completing our yearly portfolios and sending them into the state to be assessed as part of the Vermont state assessment program.

### What This Task Accomplishes

This task allows the children to see how complicated seemingly simple things can be! The openended nature of the task made it so that children had to make a lot of decisions: How many pieces each person would/could have, what toppings would be ordered, how much of each pizza, what to do with the outliers in their data and more.

### What the Student Will Do

Most students chose to work with a partner and create a short survey. They collected data about favorite types of pizza and how many pieces would be eaten. Then using division and fractions, children began to figure out different solutions to the problem.

### **Time Required for Task**

3 hours

Two, 45-minute periods for data collection

Two, 45-minute periods for solutions and recommendations

I was surprised by the amount of time it took my kids to collect data about pizza... I think this had something to do with their excitement and enthusiasm with the task.

### Interdisciplinary Links

There is a large amount of math in this situation. It seemed natural to the students that there were many possible solutions and not just one answer. In this particular task, children investigated the price of pizza at other local establishments and made suggestions accordingly. This problem could be linked with any kind of nutrition unit on food studies linked with different cultures and countries. The problem could also be easily adapted to cover many things, not just food.

### **Teaching Tips**

Make sure that if you do a problem of this sort that the children understand all the information that is needed, (i.e. pizza toppings, different sizes, etc.) and that the tasks is meaningful for the children.

### **Suggested Materials**

- Graph paper
- Calculators (optional)

### **Possible Solutions**

Solutions will vary.

There are several things the students had to account for when solving this task:

- Was there a limit on the number of pieces of pizza each person could have?
- Was it important that everyone got an equal amount?
- How many different types of pizza would be bought?
- How were these decisions made?
- What would be done with outliers in the data collected?

### **Benchmark Descriptors**

#### Novice

This student did not understand that the data collection information should be used to come up with a mathematical solution. In fact when questioned, s/he described the data collection as fun and interesting, that was why it was done... out of curiosity.

#### Apprentice

This student understood many parts of the problem, but not all. S/he did not account for the added cost of pepperoni topping. This student also did not acknowledge the fact other than in data collection that some people wanted two to three pieces of pizza. However, in the final solution, if people ate the maximum amount they said they would, there would not be enough pizza.

#### Practitioner

This solution shows that the student understood the concepts necessary for solving this problem. Although the work is not detailed, it is clear what s/he did to reach a solution.

#### Expert

This student has a very direct approach to solving the problem. This student was the only one who seemed to really think about the problem before jumping into a solution. His/her solution is direct, clear and appropriate.

Novice



Apprentice



Cost \$26.90.

The student did not account for added cost of pepperoni.

### Apprentice



### Practitioner

	1	1
name	slices	topping
Scott	35 26	Pe Provi
Amy	2635	Pepron
Winter	3526	Peproni
B. R	2635	Man harro
Adam Uh	36 45	meshradon
Sareh	45 Z L	Peproni
Owen	2-3 amy	Peproni
devin	3526	cheese
Jessi	453L	cheese
Troy Mar	553L	Peproni
Tyler	452L	angthing!
Andrew	3. ZL	Peproni
Emme	35 2.3	Peproni
Nick	36 4.55	peproni
Jamie	2-36-25	peldroni
Stephen	35 2L	ant thing
(osa day	3625	RPIONI
Alexa	3-45 2	peproni

The student documented survey results in a labeled chart.

### Practitioner



Practitioner



Expert

## PORTFOLIO PIZZA PROBLEM

Actually, I think the anser is quite cleer. To get my answer I surveyed the class. I collected data on my tabl. Sinse twice as many people wanted two peises of pizza than three peises, I think it is only fair that everyone gets the same amount so everyone only gets two. L Adam was the only one that wanted something besides peperony or cheese. I think he was being difficult just to throw my data off.

To figure out my anwer I multiplied 18X2 and got 36. This is the number of peises you need to have. I then divided 36 by 8 because there are 8 peises perpizza and got 4 remander 4... that means 5 pizzas!!! The extra pizza can be given to Dr. L. 3 peperony pizzas and 2 plain...(24 peperonys wanted)

Total Price= \$13.95 X 5 =69.75 Plus toppings1.45 x3=4.35=\$74.10

I used a calkulater

The student shows the work done to achieve an answer.

The student evaluates what to do with the remainder.

The student explains the approach and reasoning s/he used.

THIS IS VER7Y EXPENSIV.... TRY VILLAGE PIZZA THERE A LOT CHEEPER

Expert

Size Kind Howh Name Cheese Cheese Jessi B.R. eperonyo Yoy eperonyo mma ρ e peronyo arah UND LUW DU W CN eperov 1em otiona Ø er Z ptiono ephen 3 Peperor 9 10 an eperony Amlvew Peronyo nter eperon C Ad am Shroom evin Alexis eronue Amy Scott eron eronu Cassid The student shows results of his/her survey.