Unit Project

Introduction

The optional Unit Project, Ordering From a Catalog, allows students to apply what they have learned about decimals and percents while they dream about things that they would like to order from a catalog.

In the beginning of the project, students are asked to select three items from a catalog and fill out a blank order form as if they were going to purchase the items. They must find shipping costs (based on the catalog they choose to order from) and the sales tax (based on the rate for their state).

Students then are tasked with computing what the items would cost if given discounts were applied. They find out which of the given discounts is most desirable. At the end of the project, students read about a student named Wayan. Wayan has received $125 for his birthday. Students are asked to work backward to find the maximum cost of the items Wayan can buy with his birthday money that allow him to pay the tax and shipping as well.

Assigning

You can give students copies of **Labsheet Unit Project: Ordering From a Catalog** to record their work on the Unit Project. Depending on the time you have for students to work on the project, you may choose to only assign the first part.

Suggest that students begin collecting catalogs a few weeks before you assign the project. This will provide options for students who do not have catalogs available at home.

Grading

A possible scoring rubric and two sample projects with teacher comments follow.

Suggested Scoring Rubric

This rubric for scoring the project employs a scale that runs from 0 to 4, with a 4+ for work that goes beyond what has been asked for in some unique way. You may use the rubric as presented here or modify it to fit your district's requirements for evaluating and reporting students' work and understanding.

4+ Exemplary Response

- Complete, with clear, coherent explanations
- Shows understanding of the mathematical concepts and procedures
- Satisfies all essential conditions of the problem and goes beyond what is asked for in some unique way

4 Complete Response

- Complete, with clear, coherent explanations
- Shows understanding of the mathematical concepts and procedures
- Satisfies all essential conditions of the problem

3 Reasonably Complete Response

- Reasonably complete; may lack detail in explanations
- Shows understanding of most of the mathematical concepts and procedures
- Satisfies most of the essential conditions of the problem

2 Partial Response

- Gives response; explanation may be unclear or lack detail
- Shows some understanding of some of the mathematical concepts and procedures
- Satisfies some essential conditions of the problem

1 Inadequate Response

- Incomplete; explanation is insufficient or not understandable
- Shows little understanding of the mathematical concepts and procedures
- Fails to address essential conditions of problem

0 No Attempt

- Irrelevant response
- Does not attempt a solution
- Does not address conditions of the problem

Sample Student Work

A Teacher's Comments on Sample 1

Sample Student Work 1

Beth received a 4 for her work. She meets the demands of the task by successfully addressing all the essential conditions of the questions. Her explanations of her reasoning are very clear. For example, when she computes the tax and shipping for her order, she shows how she multiplied the merchandise total by the decimal equivalents of the needed percents. She also clearly shows her thinking in computing the 25%, $\frac{1}{2}$, and 20% discounts. Beth shows a considerable amount of understanding of rational numbers and flexibility in working with them. She uses multiple methods when performing operations involving rational numbers.

A Teacher's Comments on Sample 2

Sample Student Work 2

Eric received a 1 for his work. His response is weak. He does find tax and shipping for his order but does not show or explain how he found the 6% sales tax. In the last question, he does not show or explain how he came up with the sale price after a 20% discount. I feel that a student's explanation is as important as the correct answer. The lack of explanation is critical to the quality of Eric's paper. I am also concerned about his misconceptions about discounts. In questions 3 and 4, he subtracts to find the sale price for the discounted item, showing no understanding of rational numbers. It is not clear why he subtracted for these problems when he multiplied to find the 10% shipping charge. Eric's work suggests that he needs additional instruction on working with rational numbers.

Alternative Unit Project

School Fund Raising: Catalog Sales

If your students are not familiar with ordering from a catalog due to Internet commerce, you may consider the context of a school fundraiser as an alternative. School fundraisers often involve students selling items from a catalog.

Students gain experience with decimals by calculating the total amount of each order, and calculating the total amount of money they have raised.

Students can explore percentages by calculating what percent of the total revenue the schools' net profit is. In addition, the project may include providing sales incentives by calculating some percentage of each student's total revenue.