

Mathematics: The Language of STEM

Shopping for Christmas

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CONTENT AND TASK DECISIONS

Grade Level(s): 5th Grade

Description of the Task: Students will practice adding and multiplying decimals using the real-life skill of shopping for gifts.

Indiana Mathematics Content Standards: 5.AT.5 Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations to represent the problem).

Indiana Mathematics Process Standards: PS.1: Make sense of problems and perseverance in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" and "Is my answer reasonable?" They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how mathematical ideas interconnect and build on one another to produce a coherent whole. **Students in this lesson will be actively engaged in solving a specific problem. They will be working together and collaborating as they work through the task.

Mathematics Content Goals: Students will use real-world resources for a Christmas gift budget.

Language Objectives: Students will be able to explain their reasoning and explain their decisions in writing using clear, mathematical vocabulary. Vocabulary focus: add, multiply, decimal place, tenths, hundredths

Materials: graph paper, store websites, advertisements/flyers from local department stores

THE LESSON

Before: It is the holiday season. Students will spend some time brainstorming gifts they would like to receive and gifts they would like to give to their family members. Have the students estimate the cost of some of the gifts. Discuss the amount that would be a reasonable amount of money to spend on each person.

- **Activate prior knowledge**
 - What are some of the things we have to think about when we are adding or multiplying decimals?
 - Why is it important to follow a budget when buying gifts?
 - What does it mean when a store is offering 20% off of the regular price?

- **Student Actions**
 - Students will list the members of their family they would like to give gifts to for the holidays.
 - Students will be given a specific budget to use to purchase gifts for their family.
 - Students will figure out the costs of the items they want to purchase.
- **Establish clear expectations**
 - Step One: You will start by making a list of the people for which you are going to buy a gift.
 - Step Two: You will be given \$300 to pretend-spend. You must buy everyone on your list at least one gift. You must buy at least 4 gifts. You must get as close to \$300.00 as you can without going over.
 - Step Three: You will use newspaper advertisements, flyers and store websites to find the best cost for the item you want to purchase.
 - Step Four: You will make a list of what you want to purchase, who it is for and the cost of the item.

During:

- **Student Actions:**
 - Students will 'shop' using the flyers and the store websites.
- **Teacher Actions:**
 - Teacher will provide support with the technology and answering questions that arise.
- **Extension Activity:**
 - Students will be given \$400.00 to spend on an adopted family. They will be expected to purchase food for a complete holiday meal and at least 2 gifts per person in the family.

After:

- **Student Actions:**
 - Students will share their purchase list and explain their decisions to a small group.
 - They can compare the number of the family size to the type and number of gifts purchased.
- **Teacher Actions:**
 - The teacher will ask questions about why the students chose to purchase certain items.

ASSESSMENT

Observe:

- The teacher will observe that the student calculations are accurate.

Ask:

- How would you find the cost if you purchased three of the same item?