

Mathematics: The Language of STEM

"BEST BUY?"

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CONTENT AND TASK DECISIONS

Grade Level(s): 6

Description of the Task:

The students will calculate unit rate for a product of their choice to find the best buy.

Indiana Mathematics Content Standards:

- 6.NS.10: Use reasoning involving rates and ratios to model real-world and other mathematical problems
- 6.NS.9: Understand the concept of a unit rate and use terms related to rate in context of a ratio relationship

Indiana Mathematics Process Standards:

- PS.1: Make sense of problems and persevere in solving them
- PS.3: Construct viable arguments and critique the reasoning of others
- PS.4: Model with mathematics

Mathematics Content Goals:

TSWBAT:

- Work cooperatively with a small group
- Calculate unit rate
- Design and test a formula to calculate unit rate
- Compare 3 or more items to find the best deal using unit rate
- Graph results of group findings
- Orally and visually present findings (graph)
- Present arguments and evidence that support findings

Language Objectives: (Verb + Topic + Support)

Identify the unit price of a product and compare for the best product deal with a small group.

Materials:

- iPad
- pencil (colored)
- Chart paper
- Markers
- Graph paper

THE LESSON

Before:

- **Activate prior knowledge: (Pose real-world questions to spark thinking)**
 - Have you ever gone shopping and tried to find the best deal on a product?
 - What types of products come in different sizes?
 - How would you decide what the right choice is for you or your family?
 - Why would a store include or not include a unit price when trying to market a product?
 - Show students some sample products such as three sizes of Gold fish. Ask students for noticings.
 - Reveal the prices of all three products and ask for noticings again.
 - Allow for turn and talk time and have think share pairs report out to the whole class for each of the bulleted questions.

- **Be sure the problem is understood:**
 - Today your task will be to work cooperatively with a pre-arranged small group of 3-4 students and choose a product that you can compare unit prices to find the BEST BUY. The product must come in at least 3 or more sizes and be approved by the teacher before further investigation.
 - Feel free to use your iPad for various shopping sites such as WalMart, Meijer, Sam's Club... You could also use ads that come in the mail to your home.

- **Establish clear expectations**
 - Collaborate respectfully and responsibly with your small group
 - Use your "heads together" questioning and listening skills
 - participate fully - give 100% to the group
 - active and attentive listening
 - mutual respect
 - Write your thinking and brainstorming on chart paper
 - Get your product approved
 - Research a minimum of 3 sizes of your product
 - Make a prediction on which size your group believes will be the "Best Buy"
 - Calculate the unit rate. Show all work
 - Design a data chart and a graph
 - Be prepared to share

During:

- **Let go and Listen Actively:**
 - Students will work cooperatively on the expectations while the teacher circulates around from group to group actively listening to conversations.

- **Provide appropriate support**
 - How did you come up with your unit rate? Explain your thinking?
 - Are you finding worthwhile information in your research?

- **Provide worthwhile extensions.**
 - Could you find more sizes of your product to compare?
 - Which product do you think gives you the best deal? How do your findings

support that?

- o Under what conditions might it make sense to buy either of the other products that have a higher cost?

After:

- **Promote a mathematical community of learners**
 - o The students will share their findings through a group presentation using a data chart and a graph. Students will be given the freedom to choose how to create a chart and the type of graph they feel is best. The students will also have to opportunity to share pictures of their product.
 - o All groups will present while the other groups listen. Non presenting groups will then have time to turn and talk to generate a question for the presenting group. Presenters will then respond to each question.
- **Listen actively without evaluation**
 - o Use “I noticed” statements (Example: I noticed that you used a bar graph. Why a bar graph? How do you feel that best displayed your data?)
 - o Celebrate group thinking and mathematical strategies used
- **Make connections**
 - o How does the graph help you compare costs?
 - o Which did you find more helpful in organizing your data, the data chart or the graph?
- **Summarize main ideas** (How will you formalize the main ideas of the lesson? How will you reinforce appropriate terminology, definitions, or symbols?)
 - o After the presentations we will “give names” to the types of graphs, mathematical processes, data analysis charts, and tables used in the group project.
 - ratio - cost per ounce (or unit of their product)
 - unit price - division, multiplication (other possibilities)
 - Possible graph types: bar graphs, scatter plot, pictograph

ASSESSMENT

Observe: Teacher will circulate from group to group asking questions and using “I noticed” statements.

Questions may include:

- Where have you seen something like this before?
- How might a similar problem we have done help you with this problem?
- Does your answer seem reasonable?
- How did you reach your conclusion?
- What have you noticed?
- Do you agree with your group members? Why or why not?

Ask: The final series of questions will be through an exit ticket.

- What did you learn today?
- How will your learning today help you in real-world situations in the future?

- What questions do you still have?