Posing Percentage Problems

Let's explore how percentages are used in the news.

13.1 Sorting the News

Your teacher will give you a variety of news clippings that include percentages.

1. Take turns with your partner to sort the clippings into two piles: those that are about increases and those that are about decreases.
   a. For each clipping that you sort, explain to your partner how you decided which pile to sort it into.
   b. For each clipping that your partner sorts, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.
2. Were there any clippings that you had trouble deciding which pile they should go in?

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13.2 Investigating

In the previous activity, you sorted news clippings into two piles.

1. For each pile, choose one example. Draw a diagram that shows how percentages are being used to describe the situation.

   a. Increase Example:

   b. Decrease Example:

2. For each example, write *two* questions that you can answer with the given information. Next, find the answers. Explain or show your reasoning.

13.3 Displaying the News

1. Choose the example that you find the most interesting. Create a visual display that includes:
   - A title that describes the situation.
   - The news clipping.
   - Your diagram of the situation.
   - The two questions you asked about the situation.
   - The answers to each of your questions.
   - An explanation of how you calculated each answer.

   Pause here so your teacher can review your work.
2. Examine each display. Write one comment and one question for the group.
3. Next, read the comments and questions your classmates wrote for your group. Use the feedback from your classmates to revise your display.

Lesson 13 Summary

Statements about percent increase or decrease need to specify what the whole is to be mathematically meaningful. Sometimes advertisements, media, etc. leave this part ambiguous in order to make somewhat misleading claims. We should be careful to think critically about what mathematical claim is being made.

For example, if a disinfectant claims to "kill 99% of all bacteria," does it mean that it kills:

- 99% of the number of bacteria on a surface?
- 99% of the types of bacteria commonly found inside the house?
- 99% of the total mass or volume of bacteria?

Does it even matter if the remaining 1% are the most harmful bacteria?

Resolving questions of this type is an important step in making informed decisions.