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## Unit 4, Lesson 16: Posing Percentage Problems

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

### 16.1: Sorting the News

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

1. Sort the clippings into two piles: those that are about increases and those that are about decreases.
2. Were there any clippings that you had trouble deciding which pile they should go in?

### 16.2: 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:

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

### 16.3: 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. Revise your display using the feedback from your classmates.

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## Lesson 16 Summary

Statements about percentage increase or decrease need to specify what the whole is to be mathematically meaningful. Sometimes advertisements, media, etc. leave the whole 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?
- Or is it 99% of the types of bacteria commonly found inside the house?
- Or 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.