

# Chapter 4 Problem Wrap-Up

## Student Text Pages

259

## Suggested Timing

40 min

## Tools

- scientific calculators

## Related Resources

BLM 4-14 Chapter 4 Problem  
Wrap-Up Rubric

## Teaching Suggestions

- Have students read the Chapter Problem Wrap-Up and ensure they understand what they are being asked to do. Relate the Chapter Problem revisits to the Chapter Problem Wrap-Up scenario.
- Students can form groups to brainstorm strategies involved in completing the problem. However, the Chapter Problem Wrap-Up is best completed as an individual assignment.
- Circulate as students begin the Chapter Problem Wrap-Up and assist them as necessary. Students can give more polished solutions if they have additional time.
- If you assigned the Chapter Problem revisits section by section, the Chapter Problem Wrap-Up can be used as part of a summative assessment.
- If you are assigning the Chapter Problem as a whole at the end of the chapter, you can use it as part of a summative assessment or as a formative assessment prior to a Chapter Test or Task.

### Level 3 Sample Response

- a) Dufferin Power Generation has generally decreased their number of reportable spills of hazardous substances over the five-year period, particularly in the categories of PCB-Contaminated Oil and Other. However, the number of oil-related spills has been increasing over that same period.
- b) The claim is an example of descriptive statistics since it is a summary of the known data. The claim would involve inferential statistics only if it extended beyond the information contained in the data.
- c) Looking only at the Total row in the table, the headline's claim seems reasonable. However, more information is needed to properly assess the claim.
  - What is the size and severity of each spill? One major spill could have more impact than numerous minor spills.
  - Is the reported PCB level reasonable? Perhaps any level of PCB spill is dangerous. Would lowering the threshold to 1 ppm significantly increase the number of spills to be reported?
  - What is a reportable spill? How many spills are not reported and why? Have the number of non-reportable spills increased or decreased over this time period?
  - Were the reported spills cleaned up? If there were fewer spills but a greater proportion of spills were not cleaned up, then the company's environmental record has gotten worse.
  - What is the trend for the amount of time required to clean up a spill? If it takes longer to clean up a spill, then the company's environmental record has gotten worse.
  - Which of the spills had the greatest impact on the environment?
  - Who is reporting the spills, Dufferin Power Generation, a government agency, or an independent environmental group?
  - How large are Dufferin Power Generation's operations? Has the size of the organization increased or decreased over the period of the study? If the company has gotten smaller, it may be that a higher proportion of employees have been involved in spills, in which case the company's environmental record has gotten worse.

### **Level 3 Notes**

Look for the following:

- clear description of the statistics
- an explanation of the distinction between descriptive and inferential statistics is provided
- critical analysis is balanced, and includes questions for obtaining additional information
- accepts the headline claim, but challenges some details

### **What Distinguishes Level 2**

Look for the following:

- description of the statistics provided is poorly organized or misses details
- an explanation of the distinction between descriptive and inferential statistics is missing or unclear
- critical analysis may not be balanced, and includes few questions for obtaining additional information
- accepts the headline claim

### **What Distinguishes Level 4**

Look for the following:

- very clear description of all statistics provided
- an explanation of the distinction between descriptive and inferential statistics is clear, complete, and includes specific references to the given data
- critical analysis is balanced, thorough, and includes numerous questions for obtaining additional information
- sceptical view of the headline claim, challenges all details with justification

### **Summative Assessment**

- Use **BLM 4-14 Chapter 4 Problem Wrap-Up Rubric** to assess student achievement.