



Lesson 22: Presenting a Summary of a Statistical Project

Student Outcomes

- Using data collected by students or data provided by the teacher (for cases in which collecting data was not possible), students communicate conclusions based on the data distribution.

Lesson Notes

This is an exploration lesson. In previous lessons, students posed a statistical question, developed a data collection plan, and collected and summarized data. In this lesson, each student has an opportunity to present a summary of his statistical study. Students should be reminded that their presentations should focus on the four-step investigative process. It is this process that defines a statistical study for students at this grade level.

MP.3

If students carried out the process outlined in previous lessons, this lesson is a formal presentation day in which they either display and explain their posters or are provided a few minutes to explain their statistical studies. If there is not enough time for students to formally present their studies, organize a gallery walk. Hang posters around a classroom, and allow students to view as many as possible. Encourage students to take notes as they read the posters. Provide each student with a general template (see a suggested template at the end of this lesson) that can be used to summarize at least one poster as part of a whole-class discussion. Conclude the gallery walk with a short discussion of what they saw and what questions interested them. Ask students if there were any studies that surprised them. (Often a statistical study confirms a conjecture. There are times, however, that data lead to conclusions that were not expected.)

The audience for the presentations may vary. In most cases, the class is the audience. However, this type of project allows for other formats. It might be possible to use this day as an opportunity to invite parents, school administrators, or other available teachers to listen to the presentations.

Anticipate that problems will arise. In the event that there are students who did not complete Lesson 17 or were not able to collect data on their own, the posters or presentations can be based on data obtained from an outside source. It was pointed out in each of the lessons leading up to this presentation day that students were to advise their teachers about their progress. Students presenting a study based on data they did not collect should give proper credit to the source of that data on their posters or in their presentations.

Formal speaking is a comfortable and exciting experience for some students. For other students, it is an intimidating and possibly frightening experience. Teachers should use their best judgment in terms of organizing the formal presentations. If there are any students who need a little more structure in sharing their ideas, the following partially completed table could be provided to these students. Use it to help them organize their thoughts. The posters provide a format for students to present their ideas without formally presenting their studies.

Classwork

Exploratory Challenge (35 minutes): Presentation

A template for summarizing a statistical study in a poster or a presentation is provided at the end of this lesson. Discuss the template with students. If you have students do a gallery walk, students can use this template to summarize and evaluate the posters of other students. Ask each student to complete the summary for at least one poster other than his own. These summaries can then be used to structure a class discussion of the posters, highlighting how the various posters address the four-step process.

A statistical study involves the following four-step investigative process:

- Step 1:** Pose a question that can be answered by data.
- Step 2:** Collect appropriate data.
- Step 3:** Summarize the data with graphs and numerical summaries.
- Step 4:** Answer the question posed in Step 1 using the numerical summaries and graphs.

Now it is your turn to be a researcher and to present your own statistical study. In Lesson 17, you posed a statistical question, proposed a plan to collect data to answer the question, and collected the data. In Lesson 21, you created a poster or an outline of a presentation that included the following: the statistical question, the plan you used to collect the data, graphs and numerical summaries of the data, and an answer to the statistical question based on your data. Use the following table to organize your presentation.

Points to Consider:	Notes to Include in Your Presentation:
(1) Describe your statistical question.	<i>"My statistical question is"</i>
(2) Explain to your audience why you were interested in this question.	<i>"I am interested in finding an answer to this question because"</i>
(3) Explain the plan you used to collect the data.	<i>"My plan for collecting data to answer my question was"</i> <i>"I was able to collect my data as planned." (If you were not able to collect the data, explain why.) Explain any challenges or unexpected reactions in collecting your data.</i>
(4) Explain how you organized the data you collected.	<i>"Let me explain how I organized my data and prepared my summaries."</i> <i>Students might use a table to summarize the data or organize data in a list that could be used to prepare a dot plot or a box plot.</i>
(5) Explain the graphs you prepared for your presentation and why you made these graphs.	<i>"I developed a dot plot to start my statistical study because"</i>
(6) Explain what measure of center and what measure of variability you selected to summarize your study. Explain why you selected these measures.	<i>"I selected (the mean or the median) as the measure of center because"</i>

(7) Describe what you learned from the data. (Be sure to include an answer to the question from Step (1) on the previous page.)

“Let me tell you the answer to my statistical question”

Evaluation of Posters

Given that students’ work involves several steps, including displaying and organizing their work, it is recommended that a well-defined rubric be developed for evaluating this work. A sample rubric is available at the American Statistical Association’s website: <http://www.amstat.org/education/posterprojects/index.cfm>.

Rubric designs are highly dependent on the process used to complete this project; therefore, the final rubric design should be a teacher decision. Assessment of the project should provide students with feedback regarding the statistical question, the collection of the data, the summary of the data using graphs and numerical summaries, and the conclusions reached in answering the statistical question.

Closing (2 minutes)

Encourage a discussion around the questions posed in the Exit Ticket, or if time is not available for a discussion, encourage students to write their responses.

Lesson Summary

Statistics is about using data to answer questions. The four steps used to carry out a statistical study include posing a question that can be answered by data, collecting appropriate data, summarizing the data with graphs and numerical summaries, and using the data, graphs, and numerical summaries to answer the statistical question.

Exit Ticket (8 minutes)



Template for Lesson 22: Summarizing a Poster

Step 1: What was the statistical question presented on this poster?

Step 2: How were the data collected?

Step 3: What graphs and numerical summaries were used to summarize data?

Describe at least one graph presented on the poster. (For example, was it a dot plot? What was represented on the scale?) What numerical summaries of the data were included (e.g., the mean or the median)? Also, indicate why these particular numerical summaries were selected.

Step 4: Summarize the answer to the statistical question.