

Statistics Lab

Collecting Data to Solve a Problem

MAIN IDEA

Solve a problem by collecting, organizing, displaying, and interpreting data.

In this lab, you will collect, organize, display, and interpret data in order to solve a problem.

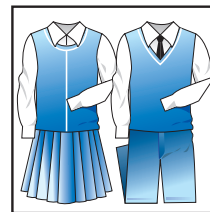
ACTIVITY

- 1 *Rating scales*, like the one below, are often used on surveys to find out about people's opinions. Participants indicate how strongly they agree or disagree with a specific statement.

5	4	3	2	1
Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree

Consider each of the following topics.

- yearbooks in interactive DVD format
- voting age for presidential election
- school uniforms
- fast food in school



STEP 1 Make a data collection plan.

- Choose one of the topics above and a group to survey.
- Write one or more survey questions that include the rating scale shown above to determine student opinion on this topic.
- Identify an audience for your results.

STEP 2 Collect the data.

- Conduct your survey and record the results.
- Collect responses from at least 10 people in the population you chose.
- Record your results in a frequency table.

STEP 3 Create a display of the data.

Choose an appropriate type of display and scale for your data. Then create an accurate display.

ANALYZE THE RESULTS

1. What are the mean, median, mode, and range of your data?
2. Use your display to describe the distribution of your data.
3. How would you summarize the opinions of those you surveyed? Include only those statements that are clearly supported by the data.
4. Based on your analysis, what course of action would you recommend to the group interested in your data?
5. Present your findings and recommendation to the whole class. Include poster-size versions of both your displays and a written report of your data analysis.
6. **MAKE A CONJECTURE** What other factors might influence the results of your survey?

Study Tip

Bias Survey questions that favor a particular answer are biased. Be sure your survey question is worded as to avoid bias.

ACTIVITY

2 A log is an organized list that contains a record of events over a specified amount of time. Consider each of the following topics.

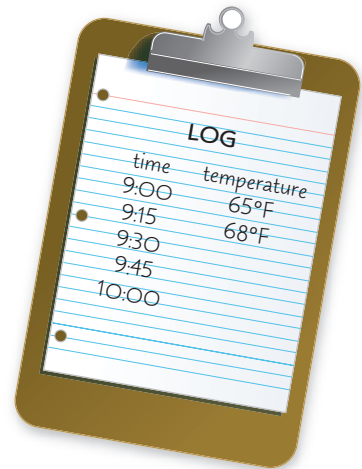
- the amount of time you spend watching television each day
- the outside air temperature over a period of 2, 4, 6, or 8 hours

STEP 1 Make a data collection plan.

- Choose one of the topics above and a reasonable period of time over which to collect the data.
- Create a log that you can use to collect the data.

STEP 2 Collect the data and create an appropriate display.

Record the necessary data in your log. Then choose and create an appropriate display for the data.



ANALYZE THE RESULTS

7. What type of display did you choose?
8. Describe the change in your data over the time period you chose.
9. If possible, use your display to make a prediction about future data. Explain your reasoning. If not possible, explain why not.