Section 3.3 Collect and Organize Data

1. a) Why is data generated by the researcher through experiments or observational studies called *primary* data?
b) What distinguishes *secondary* data from *primary* data?

2. a) Is it possible to collect primary data when the population of a survey is every person in Canada? Explain.
b) What are the disadvantages of using secondary data?
c) What are the advantages of using secondary data?

3. Explain how to change each experiment to ensure that the data collected is accurate and fair.
a) Brianna watches cars at an intersection for 10 min. She then estimates how many of them were red.
b) Namond asks all the friends he sees at the food court which restaurant they like the most.

4. Jordan downloaded the results of a survey that asked these questions.
"What language do you speak at home?"
"What is your occupation?"
"How long have you lived in Canada?"
What would the column headings be for the summary table?

5. What is the relationship between the urban and rural populations of a province in 1851 and in 2001?

Year	Urban Population	Rural Population
1851	318 079	2 118 218
2001	23 908 211	6 098 883

6. Set up an observational study that attempts to answer the question, "Does the time of day influence the number of students in the library?" This study can be done in small groups or individually.
a) Set up a schedule so that counting the students in the library is done for a 5-min span, each hour of a given day.
b) Record the number of people in the library in each time span.
c) Repeat the data collection on at least one additional day.
d) Summarize your data in a summary table and plot the information in a scatter plot.
e) How could the summary be used by the school administrators?
f) Explain why this is considered an observational study.

7. Design and carry out an experiment to test the accuracy of people dropping a coin from various heights (0.5 m, 1.0 m, 1.5 m, and so on). This study can be done in small groups or individually.
Consider the following:
• What are the variables?
• What are the column headings for your recording sheet?
• Are there ways to expand the experiment?
• What equipment is needed?
• How many participants will you have available for your experiment?
• What space is needed?
• What software could you use to help organize and display the data?
Analyse the results and provide a one-paragraph report.