Data that are collected and analysed can be primary or secondary.

Primary data are collected first-hand by the person interested in the problem.

Secondary data are collected by someone else and made available through publication or records.

Bias- an unintended influence on a data-gathering method

Biased information can be collected by improper selection of a sample or by creating a poorly worded survey.

Sampling bias –when the chosen sample does not accurately represent the population

Non-response bias – when the results are influenced because surveys are not returned

1. Identify each of the following variables as categorical, continuous or discrete.

    a) age   **b)** favourite meal

    c) television viewing preferences   **d)** volume of a radio

    e) colour of hair   **f)** fabric texture

    g) pH of water samples   **h)** seating capacity

    i) grades   **j)** paint colours

2. Identify the population being studied in the following questions. How would you collect the sample or would you do a census?

    a) Is there a relationship between weather conditions and absenteeism in Grade 9 in your school?

    b) How much of their own money do students at your school spend on their clothes?

    c) Are teenage drivers who have been issued speeding tickets more likely to be males.?

3. State whether each of the following is true or false.

    a) An example of a primary source of data is data collected by somebody else.

    b) Data collected by a research company are also an example of a primary source of data.

    c) The five Ws refer to Who? What? When? Where? Why?

    d) Data collection is usually done using some sort of survey, questionnaire, or poll.

    e) A poorly selected sample will not cause biasing.

4. Which of the following are examples of sampling bias. Explain.

    a) A researcher selects people off the street for an interview.

    b) A researcher randomly selects products off an assembly lline for quality control testing.

    c) Traffic volume will be estimated by counting the number of cars traveling through an intersection during the researcher's lunch hour.

    d) Books in the library will be tested for mildew by randomly slecting a shelf and taking every book off that shelf.

5. Discuss how you would collect data on each topic below.

    a) Top three teams in the NHL

    b) The point of origin for all visitors to Canada in the past four years

    c) The most popular brand of potato chips for adolescents

6. During election time, polls are conducted to determine who the leading candidate is. Discuss how this information is often misleading.

7. An article in a newspaper made the following claim: *The majority of homes are heated by gas.*

The article goes on to discuss how efficient heating by gas is and how many people have converted from oil. At the bottom of the article, the source of information is indicated as "National Gas Company."

    a) Discuss the biasing in this article.

    b) People can easily be mislead, especially when the phrase "statistics indicates" prefixes a statement or an article appears in a major newspaper. List three things readers should look for to confirm that the statement or article is not biased.

8. The three main ways of collecting data are personal interviews, telephone interviews, and postal surveys. Complete the chart below to describe each method and indicate the advantages and disadvantages of each.

Collection of Data	Description	Advantages/Disadvantages
Personal interview		
Telephone interview		
Postal survey		