CHAPTER 2 Relations
2.1 Hypotheses and Sources of Data
Hypotheses, primary and secondary data

Example:

a) Consider the question: does fluoridation of drinking water decrease the incidence of tooth decay? State a hypothesis, and its opposite.

b) Classify each of the following as primary or secondary sources of data. Give a reason for your classification.

i) Carlo counted letters on 10 randomly-chosen pages from an encyclopedia to determine how often each letter occurred.

ii) Suzanne knocked on doors in her neighbourhood to see how many people would be interested in attending a block barbeque.

iii) Efrem consulted a weather site on the Internet to find out how much rain had fallen locally on each day of the previous month.

Solution:

a) Hypothesis: Fluoridation of drinking water decreases the incidence of tooth decay. Opposite: Fluoridation of drinking water does not decrease the incidence of tooth decay. Alternate form: Fluoridation of drinking water does not affect or increases the incidence of tooth decay.

b) i) This is primary data. Carlo counted the incidence of letters himself. He performed a survey.

ii) This is primary data. Suzanne gathered the answers herself. She performed a survey.

iii) This is secondary data. Someone else gathered the data for the weather site.

Practice:

1. Consider the question: Does spending more time reading each day increase a student's score on a literacy test? State a hypothesis, and its opposite.

2. Classify each of the following as primary or secondary sources of data. Give a reason for your classification.

i) Sylvester attended a fishing contest, and collected data on how many fish were caught using different kinds of bait.

ii) Renate visited the Internet site for a major airport, and looked up data as to the number of takeoffs and landings for each of the previous 12 months.

iii) Lydia travelled along several roads in a rural township, collecting data on the types of crops being grown.

Answers:

1. Hypothesis: Spending more time reading each day increases a student's score on a literacy test.
Opposite: Spending more time reading each day does not increase a student's score on a literacy test. Alternate form: Spending more time reading each day has no effect on or decreases a student's score on a literacy test.

2. i) primary ii) secondary iii) primary